THE AUTOMOBILE

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# TRACKLESS COACHES FOR FIFTH AVENUE.

EVEN the venerable blue and yellow ramshackle horse-drawn stages that have from time immemorial been one of the features of New York's most fashionable thoroughfare are destined inevitably to give way in the course of time to the march of progress. This seems to be recognized and desired by everybody, the operating company as well as the public, and while patrons of the dilapidated old stages have marveled at the apparent lack of progress in the failure to supplant them with mechanical coaches that would be faster, more comfortable and less ugly, the Fifth Avenue Stage Company has had hidden away in the darkest corner of its stable on Eighty-eighth street two electric 'buses of the incubus type, representing investments running into thousands of dollars that had to be charged up to the profit and loss account. Undaunted by these failures, the company has continued to experiment, and the result to date will be made evident this week, when an entirely new type of vehicle is put into regular service. The general appearance of the new coaches, which are in reality trackless street cars, is revealed in the accompanying excellent photographs. Full details of construction are not yet obtainable, but the following general description will give some idea of the mechanical features.

STRIKING CONTRAST BETWEEN OLD FIFTH AVENUE HORSE-DRAWN STAGES AND NEW LUXURIOUS COMBINATION SYSTEM CARS.

Since none of the automobile companies cared to devote to experimental work the time and machinery that was employed in the profitable work of building pleasure and

commercial vehicles of types for which there was a known market, the Fifth Avenue Stage Company (which is one of the subsidiary companies of the New York Transportation Company, that operates several hundred electric cabs, sight-seeing stages and other vehicles in the metropolis) decided to build another experimental car with its own money, and enlisted the services of such well-known concerns as the General Electric Company, the Vehicle Equipment Company and James B. Brill Company, the street-car builders, to put its ideas into concrete form. The General Electric Company made all the designs for the chassis and furnished part of the material, the Vehicle Equipment Company built the chassis in its Brooklyn plant, and the Brill Company constructed the special body in its great Philadelphia works. The influence of the special lines of work of the electric and street-car companies is noticeable in the finished product.

FRONT END OF FIFTH AVENUE COACH.

The power plant is a "combination" of the gasoline and electric independent systems. It is located in the front end of the 'bus, under the operator's seat, the prime mover being a 40-horsepower Speedway gasoline motor direct connected to a General Electric generator, which furnishes current to two G. E. motors hung under the frame and which drive the rear road wheels by sprockets and chains. Beneath the body two ten-cell Exide storage batteries are also hung, which are used to furnish lighting current for five incandescent globes in the interior of the body and other lights outside. The batteries are used also for starting the engine, as a matter of convenience, by connecting them with the generator, which can then be used as a motor to rotate the crankshaft. In actual tests the vehicle has developed a speed of fifteen miles an hour. The storage battery is not used for storing surplus current from the generator or equalizing the load, and it is not connected to the driving motors. One charge will suffice for a day's operation of the car.

Seating capacity for thirty passengers is provided by the body, which is of the street-car type and semi-convertible; that is, the windows can be raised entirely out of sight, turning backward into the roof of the car, leaving the sides very open in summer. Cane-covered cushioned seats for two persons each extend crosswise of the car, with an aisle down the center. The interior finish is in oak and bird's-eye maple, and removable slat floors are provided. Complete the car weighs about seven tons.

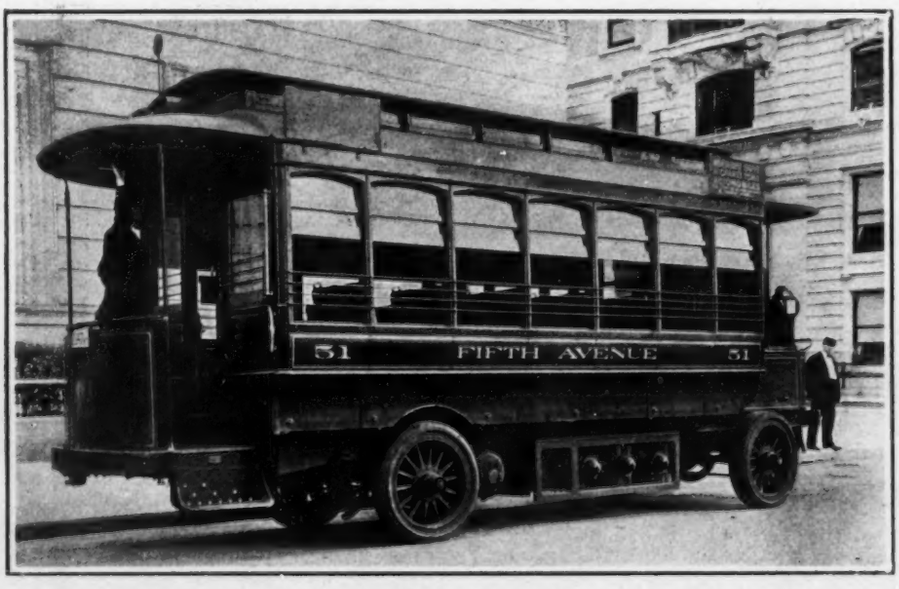
One of the unique features of the car is an electric attachment which automatically shows a red sign by daylight and a red light at night on the rear end of the top when the car stops and lowers the sign or extinguishes the light when it starts again. Another innovation is a gate on the rear platform which is to be closed when all the seats are filled, the intention of the company being to admit no more passengers when all the seats are occupied.

Wednesday, September 20, was set by the company as the day when the new car was to be put into regular service for the first time on the Fifth Avenue route. It has been completed for more than a month and has been put through a series of experimental runs in Brooklyn for several weeks, running to Flatbush and to Coney Island, in which tests it proved very satisfactory, only such trifling imperfections as usually develop in experimental tests having been made manifest. Test runs have also been made in the evenings on the Fifth Avenue route, the distance from the arch at the Fifth Avenue entrance to Washington square to the company's stable at Eighty-eighth street, near Fifth avenue, having been made in twenty-six minutes. It is recognized, however, that the only thorough test is actual service in the regular work the car is designed to do, so the management is very reserved regarding its expectations. It will give it a three months' test in the work, and if at the end of that period it has proved sufficiently successful, plans will be made for changing over the entire Fifth avenue stage equipment.

This first car will be operated on a route only as far uptown as Eighty-eighth street, but when others are added some of them will run the full length of the avenue. The fare is to be 10 cents for a single trip. The car is to start at 9 A. M. from Eighty-eighth street and will probably make a round trip every hour, as it is estimated the run down to Washington Square can be made in half an hour. The present horse-drawn 'buses require forty minutes.

Traffic conditions on Fifth avenue make the construction and operation of automobile stages a very serious problem. Although there is no street-car line on the avenue, the stage line is paralleled by an elevated and surface car line on Sixth avenue and by a surface car line one block east on Madison avenue, while the Broadway surface line intersects it at a very acute angle and the subway nearly parallels its lower end only two or three blocks east. For these reasons, and because the persons who most frequent the thoroughfare belong to the wealthy classes, it is recognized that superior transportation facilities must be provided to compete successfully with the other lines. Speed without rails must be combined with comfort and cleanliness.

Owing to the very heavy vehicular traffic in the avenue, the car must be easily controlled, so that it can be stopped and started quickly. Another peculiarity of the line is that Fifth avenue is one of the sights of the city, and the line is much frequented by sightseers. For this reason the cars must be as open as possible, yet an "upper deck" is considered impractical because of the time lost while passengers are ascending to and descending from the upper seats. Through the large windows, however, the passengers can view the points of interest.



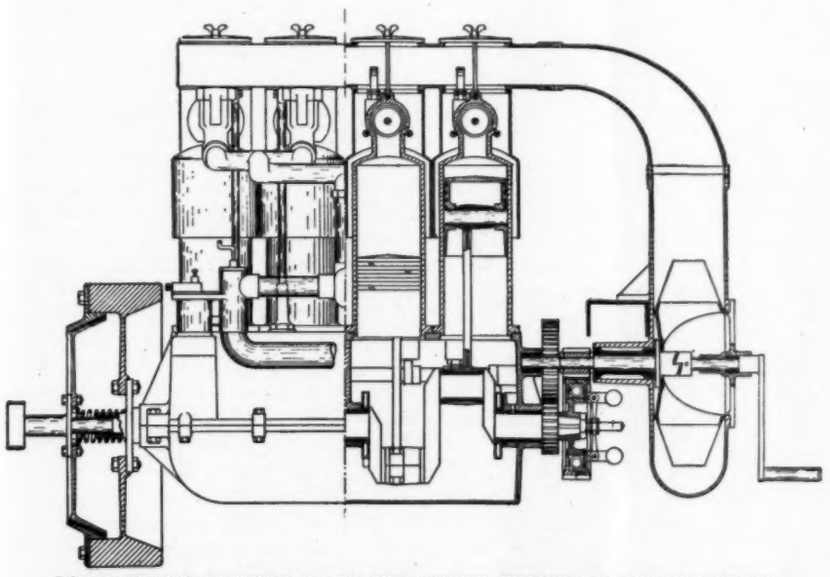

VIEW SHOWING CONDUCTOR'S PLATFORM AT REAR END OF FIFTH AVENUE COACH.

# Air-Cooled Motor in Principle and Practice.--IV.

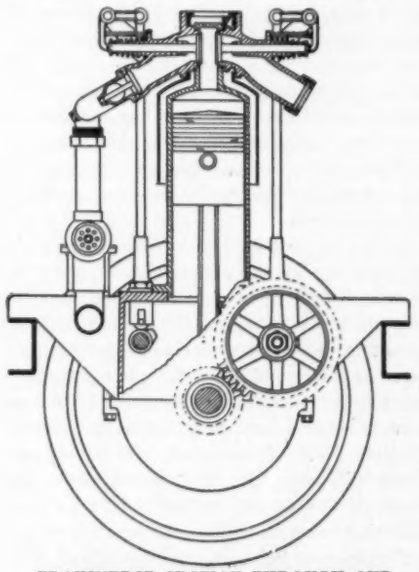
By HERBERT L. TOWLE.

(*Concluded from page 258, issue of September 7.*)

I HAVE reserved the last place in this article of the Frayer-Miller motor, for the reason that it impresses one, in its air-cooling system, as logical and scientific, and because, by reason of its novelty, it is best approached by way of the simpler forms. In this motor reliance is placed solely on convection for cooling, the air blast is made constant and definite by means of a gear-driven centrifugal blower, and an air jacket around each cylinder confines the air where it will do the most good. The cylinders, four in number, are 4 1-16 inches in bore by 5 1-8 inches stroke, and are placed vertically fore and aft. The blower, at the front end of the bonnet, delivers air to a distributing pipe which runs over the heads of the cylinders, and tapers from front to back. It is readily removable, and it opens beneath into the loose aluminum air jackets, so that the air blows directly on the cylinder heads.



LONGITUDINAL DRAWING OF FRAYER-MILLER ENGINE, PARTLY IN SECTION.



TRANSVERSE SECTION THROUGH ONE CYLINDER.

The valves, both of them mechanically operated by push rods and bell cranks, are located horizontally as in the Cameron, with the spark plugs in the heads of the valve chambers. Covered hand holes in the distributing pipe give access to the plugs. The annular air space inside the jacket is only about 1-4 inch wide, and no ribs or flanges are used, nothing, in fact, save a few small spikes cast at intervals on the walls to break up the air current, where they serve also to increase the surface somewhat.

This feature of the design, coupled with the arrangement of the valves, evidently guarantees a free flow of air over every part of the hot surfaces. On the other hand, the extreme paucity of cooling surface, in marked defiance of the traditions of air-cooled motor design, is likely, in the minds of those unfamiliar with the performance of this motor, to raise some doubts as to the efficiency of the system. This point will be referred to later; meanwhile, for the sake of the argument, let us suppose that a given molecule of air needs only an instant's contact with a hot iron surface to become heated to practically the temperature of that surface. Continued absorption of heat then becomes a question only of supplying a sufficiency of air, and of removing the heated molecules quickly and replacing them by others. Not all the molecules supplied—perhaps only a small fraction of them—will come into actual contact with the hot surface, but those that do not will still be useful to mingle with and cool those heated by contact. Thus, with an efficient stirring of the air currents, the final temperature of the stream will be a mean of all its parts, and may be calculated from the volume and specific heat of the air supplied, and the quantity of heat absorbed.

To illustrate, let us suppose that the mean temperature of the discharged air may be permitted to reach 200 degrees Fahr. As its initial temperature may, in summer, be as high as 100 Fahr., this means an increase in temperature of 100 degrees. One cubic foot of mixture at 70 degrees—to take an average rather than an extreme figure—represents about 72 British thermal units, of which probably 40 per cent., or 29 B. T. U., must be absorbed by the air. The specific heat of air at constant pressure is 0.283, meaning that that fraction of 1 B. T. U. will raise the temperature of 1 pound of air 1 degree Fahr. Hence 1 B. T. U. will heat 1 pound of air 3.53 degrees Fahr., and 29 B. T. U. will heat it 102.5 degrees, or practically to our allowable limit. But 1 pound of air at 70 degrees measures 13.3 cubic feet, so that we see that, theoretically, 13 to 14 cubic feet of air must be blown over the cylinders for every cubic foot of mixture burned. Since a cubic foot of mixture per minute, in the average gasoline engine, will give about 0.27-horsepower, it follows that 1-horsepower would require for cooling about 52 cubic feet of air per minute.

One further point—and an important one—remains to be covered. That is the temperature of the iron at which the above-noted transfer of heat takes place. A rough averaging of the internal temperature of the cylinder for the four strokes of a cycle indicates a probable mean temperature of about 1,000 degrees Fahr. under full load. On the assumed data, the mean temperature of the air in contact with the iron will not exceed 200 degrees, and if both inner and outer surfaces had equal convecting value, the temperature of the iron would be a mean between the two, or 600 degrees. As a matter of fact, a large portion of the inner surface is covered with a film of oil which materially reduces its convecting power, so that the mean temperature of the iron will here be considerably less than 600 degrees, probably not over 300 or 350 degrees; and the head and valve chambers will be prevented from reaching the theoretical temperature by the flow of heat from them to the cooler walls. We are thus able to give a scientific justification for the omission of flanges, etc., when an air blast is employed in the manner described.

Now, the Frayer-Miller engine is not the product of abstract theorizing, but of practical investigation and trial. Mr. Frayer's first experiments, I am told, were made with a copper-jacketed Cadillac motor and a blower picked up about the shop; and, queer as it may seem, that combination actually ran without overheating. Subsequent trials indicated the most suitable form and size of

blower, the valves and plug were located where they would not overheat, and the "spikes" were added to ensure commingling of the air streams. I had the privilege of a climb up Fort Lee Hill, well-known to all New York motorists for its long and steep ascent, in the company's demonstrating car during the Madison Square Garden show last January. There were four in the car, the weather was slightly thawing, and I watched the motor carefully all the way up. Part of the climb was made in the second gear, most of it in the first; and I can truthfully say that at no time did the motor show signs of overheating or distress. A few miles further the spark plugs were taken out and found to be in good condition, only the foremost being slightly blackened.

In view of all this, Mr. Frayer's statement to me that he uses about 50 to 60 cubic feet of air per minute per horsepower, or a little more, is most interesting. It indicates that, as a practical matter of fact, the transfer of heat from a cast iron surface to the contacting air is not inherently a slow process, demanding a profusion of ribs and other devices for increasing the surface to disperse the heat quickly. What is required is that the air be removed quickly—instantly—after contact, by mechanical means, since its natural movements are too slow, and replaced by fresh.

It may be that a blast sufficiently violent will cool any surface, or it may be that, as the velocity of the blast is increased, a point is reached where the particular molecule is in contact too short a time to absorb its due quota of heat, and that the blast then becomes inefficient from its own velocity. On these subjects there seems to be an almost complete lack of recorded scientific data. Meanwhile, the results obtained with the Frayer-Miller motor, and hinted at by several others described above, certainly seem to throw new light on the subject of air-cooled motor design.

THE END.

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**The farmers** in the vicinity of Wade McCutcheon's home in Wabash county have quit talking about the automobile and after this they say they will vote against any legislator who seeks to embrace the men who guide them. A two-year child in the McCutcheon home, four miles east of North Manchester, got hold of a paper of corrosive sublimate, and was trying its best to eat it. The youngster had pushed almost as much into one of its eyes as it had into its mouth when the mother realized what had happened. She rushed to the telephone connected with the same line which some farmers used to swear at and litigate about, and called Dr. Shoemaker, and within twelve minutes the man of medicine rode to the McCutcheon home, affording relief. The child was saved and is on the road to recovery. It will also be saved from blindness. That is the reason that the farmers in the McCutcheon neighborhood now swear by the automobile.—*Goshen (Ind.) Times.*

# Ohio Auto Stage Line Experiment.

## Reasons that Led Electric Railroad Promoters to Start It—Methods Pursued, Operative Costs and Business Prospects.

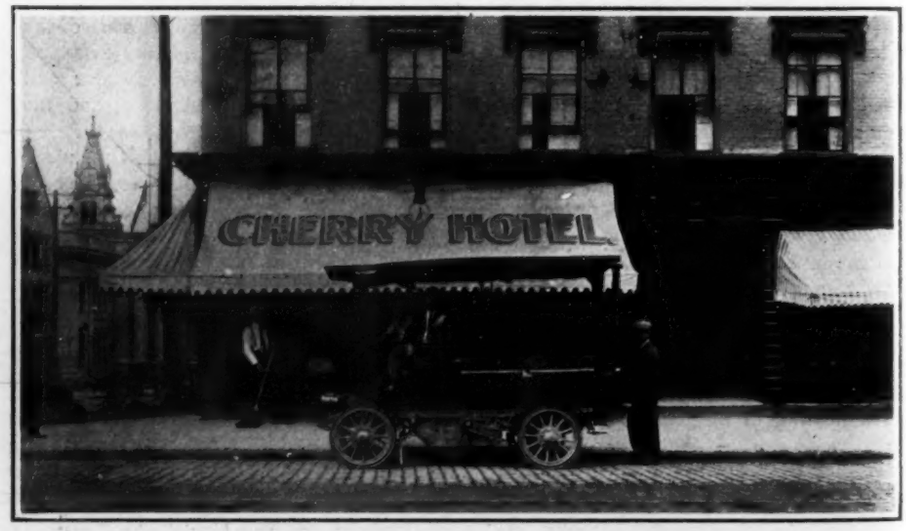
*Special Correspondence.*

SPRINGFIELD, OHIO, Sept. 18.—Promoters of electric railways and others interested in the transportation problem are watching with a great deal of interest the results of an experiment being made in this city. It represents one of the first attempts made in the country, and certainly the first in this central district, to supplant the trolley line with the automobile. It has long been one of the acknowledged problems in the electric railway industry to take care of the requirements of small towns lying five to twenty-five miles off from a main line; districts which are enterprising and demand better transportation facilities than are afforded by teaming, but in which the population is not sufficient to warrant the building of the electric road with its expensive right of way, grades, track, overhead and power equipment. Even the cheapest forms of such lines cost from $15,000 to $25,000 per mile to build, and long experience has shown that a territory must have a tributary population of from 400 to 800 per square mile to make it remunerative. With less than this population such a road is almost sure to fail, unless the terminal cities are very large.

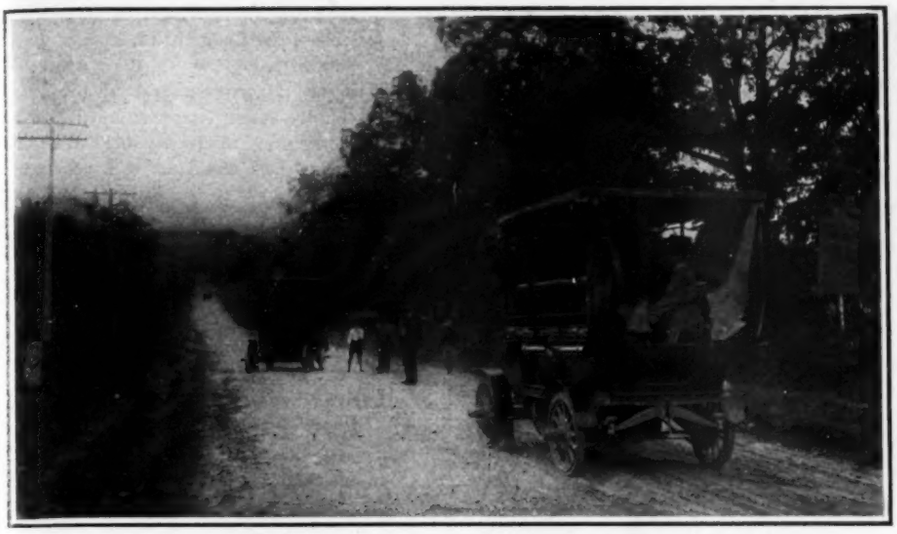
The question of whether the automobile will take care of the less populated districts is being tested out here in a thorough manner, and it is interesting to note that the people who have invested their capital and pinned their faith to the enterprise are not experienced automobile enthusiasts. As a matter of fact, they knew very little about automobiles when they went into the enterprise; they are experienced electric railway operators and promoters. A number of small towns within a radius of twenty-five to thirty miles of Springfield wanted the advantages of better transportation facilities. Attempts to project electric lines to these points failed because of lack of financial backing due to the small population. After studying the situation thoroughly, it was decided to try the automobile. The Commercial Transit Company, of Springfield, was formed with $50,000 capital stock. Prominent among those interested are John S. Harshman, who was president and promoter of two of the leading traction lines in this district; E. B. Gunn, superintendent of the Springfield city lines, and R. Torrence, a traction line promoter.

They started on a modest scale, buying three standard Olds twelve-passenger 'buses and ordered two cars of a larger type to seat eighteen. The route selected for the first venture was over the Jamestown Pike, which passes through Clifton, Cedarville, and Jamestown, the latter point being twenty-two miles from Springfield. Clifton has about 500 population, Cedarville about 1,500, and Jamestown about 2,500. None of these towns has direct railway connection with Springfield, a city of 30,000 and the natural center for this district. The highway is fairly level, with hard gravel surface, and it is usually in excellent condition all the year around.

The company spent about $1,200 in filling holes and low places with broken stone, leveling and rolling the entire road with a steam roller and strengthening some of the culverts, the idea being to improve the road in every way possible for its own convenience as well as to gain the good will of the country people, who at first were




AUTOMOBILE STAGE LEAVING HOTEL IN SPRINGFIELD, OHIO, FOR RUN TO JAMESTOWN.



STAGES PASSING EACH OTHER ON THE ROAD ABOUT MIDWAY OF THE ROUTE.

rather antagonistic to the proposition. The company also made an agreement with the county commissioners of the two counties through which the line passes to spend $100 a mile per year on road improvements, the commissioners to do the same. This was purely voluntary on the company's part, as there is no law in Ohio to prohibit the use of the highway for such purpose or to compel the company to make any special payment for the use of the road. In one of the counties the commissioners were inclined to hold the company up for special concessions, but spirited action, failure to find any laws on the subject, reference to old stage coach lines, and especially the company's inclination to do the right thing, soon won them over. The company may, however, be compelled to pay special automobile licenses in cities where there are ordinances.

It is the intention to live up to the state automobile law which restricts the speed to fifteen miles an hour in villages and eight miles an hour on business streets of cities.

The schedule laid out provides for one hour and fifty minutes for twenty-two miles or about twelve miles an hour. Thus far there has been no difficulty in maintaining this schedule, despite the fact that unusual precautions are being taken to avoid scaring horses. Farmers at first were inclined to be very antagonistic to the venture on this account, and every effort is being made to win them over, as the success of the enterprise depends largely on the patronage. Operators are instructed to hold strictly to the state law, which provides that an automobile must give a team two-thirds of the road and if the driver of a horse raises his hand the machine must be brought to a stop. If the horses are still inclined to be fractious, the motor must be stopped. This, of course, necessitates getting out to crank the machine again and the loss of time by reason of such incidents has been considerable, but this disadvantage is becoming less and less, and after six weeks of operation the farmers are coming to the conclusion that the line is a good thing for them and that it is cheaper to patronize it than to hitch up and drive to town. This will become more apparent during wet and cold weather. The rates are reasonable, being based on 2 1-2 cents a mile; 50 cents for the twenty-two miles, or 95 cents for the round trip to Jamestown. Cars leave each terminus at 6 A. M., 9 A. M., 12 M., 2 P. M. and 6 P. M.

The ride is especially pleasing in good weather, and it is safe to say that many citizens of Springfield and many strangers who visit that city will take the trip for the enjoyment there is in it. The counry is slightly rolling, with long grades at the tops of which one can see for miles. The villages are quaint and old-fashioned and there are many negro cabins, so that one almost imagines he is in the South. Tobacco and sugar cane, which are quite plentiful, serve to increase this delusion. Clifton, noted for its high cliffs and beautiful scenery, promises to become more popular than ever as a pleasure resort since the opening of the line.

Thus far the cars have given good service, and, although they are light for such work, it is believed they will stand up. They have vertical double cylinder motors rated at 16 horsepower, water cooling system, two speeds forward and reverse with maximum speed of eighteen miles an hour, and 30-inch wheels fitted with Firestone solid rubber tires. They have canopy tops with side curtains and swinging window in front. The operating company has made several slight changes in the cars, installing small electric lamps in the top and an electric headlight, current being furnished by a battery in connection with an Apple generator which also furnishes current for engine ignition. Celluloid windows will be placed in the curtains so that the cars will not be dark in stormy weather, and it is planned to run the engine exhaust pipes under the seats for heating the cars in winter.

Under the present schedules two cars handle the service, one making two and a half round trips or 110 miles a day, and the other 88 miles or two round trips. There is a short layover between most of the trips and each car lays up every third day. The cars are inspected and cleaned every day. They have been averaging 4 1-2 to 6 gallons of gasoline for a round trip of 44 miles and about 2 1-2 to 3 pints of lubricating oil. An allowance of two cents per mile is being made for repairs, which thus far has been practically nothing. It is thought the cars can be operated for from 4 1-2 to 5 cents per mile as compared with 13 to 15 cents per mile for electric cars. Operators are paid 25 cents an hour, and they of course attend to the collection of fares. Thus far, as a business proposition, the project has proved most encouraging; in fact, it is claimed to be self-sustaining already. If business improves, larger cars will be placed in the service, and it is probable that a truck will be operated over the route to handle produce and other freight.

As soon as possible another line will be started over a route north from Springfield, connecting Mechanicsburg and other towns. It is possible that the present route may be extended to connect Jamestown with Xenia, the county seat. The company also expects to operate 'buses in Springfield for private parties and excursions to nearby resorts, charging a rate of $5 an hour for the cars.

For garage and headquarters, an old building was leased and rebuilt to give it a handsome and substantial appearance. There are waiting rooms, ticket office and general office in front. In the rear there is a repair shop, charging plant for electric vehicles and batteries, inspection pits and machine tools for taking care of all classes of repair work. A general garage business is to be conducted and the establishment will be the most complete of the kind in Springfield. It is located a few doors from the main street of Springfield, which is the old national turnpike that is traversed by many tourists. Altogether, this proposition furnishes food for thought for promoters in many districts where there are similar opportunities.

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**Albert Green,** of near Manchester, is apparently of an inventive turn of mind. If the reports are to be believed, he has rigged up an automobile by erecting a gasoline engine on trucks made of mower wheels, and with the addition of a box the machine is ready for use.—Ann Arbor (Mich.) *Times.*

**An automobile** struck a New Jersey man the other day, knocked him fifty feet and he got up and made faces at it. The auto will yet develop a race of men who telescope themselves every time they are struck, climb into their shell and thank the driver for the favor.—Kalamazoo (Mich.) *Telegraph.*

# Final Preparations for the Vanderbilt Cup Race Elimination Trials on September 23.

**CONDENSED INFORMATION REGARDING ELIMINATION RACE ON SEPTEMBER 23 TO SELECT AMERICAN TEAM FOR W. K. VANDERBILT JR. CUP RACE.**

**Number of cars to start, twelve.**
**Length of Long Island course, 28.3 miles.**
**Number of rounds or laps, four.**
**Total distance of race, 113.2 miles.**
**Number of "Corners," six—five to left, one to right.**
**Start and finish, at grandstand, Mineola.**
**Hour of start, 5 a. m. Saturday, September 23.**
**No controls and no official stops required.**
**Number of different makes of cars entered, ten.**
**Average horsepower, 57 1-2.**
**Types of cars, all multicylinder, vertical engine, motor-in-front.**
**Air-cooled cars, two—Franklin and Premier.**
**Steamers, one—White.**
**Six-cylinder cars, two—Pope-Toledo and Thomas.**
**Eight-cylinder car, one—Franklin.**

AT 5 o'clock on Saturday morning, September 23, the first car will be sent away from the line on the Long Island circuit in the eliminating trials to select an American team for the Vanderbilt cup race. It is not known positively that all of the twelve cars will be in readiness to take their place at the line, and in fact until the race has actually been started, there will probably be some uncertainty on this point. Dr. Thomas' huge Locomobile "No. 5" was the first to arrive on the course, coming over the road under its own power from the Bridgeport factory with Joseph Tracy at the wheel and Al Poole in the mechanician's seat. It was put into the temporary garage at the Lakeville hotel last Thursday. Other early arrivals were the Thomas at Lakeville, the Royal at Mineola and the White steamer at Bull's Head Corner.

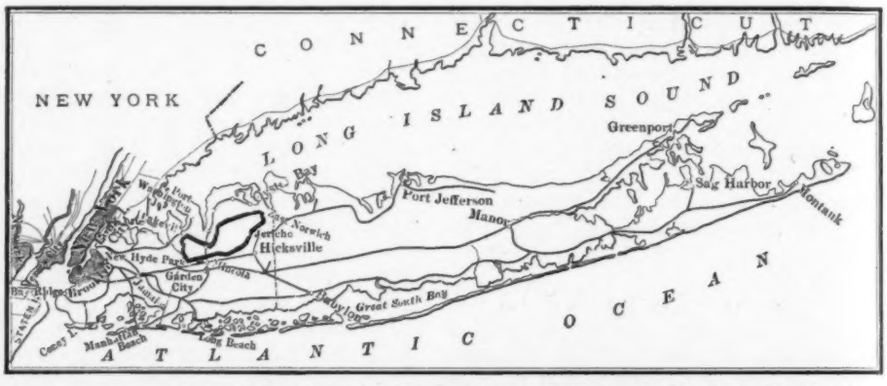
On the days following their arrival, the cars were out in the early morning hours practising so that the drivers could become familiar with the corners, grade crossings and winding stretches of the roads. On the latter a great deal of work has been done in the past two weeks. Oil has been sprinkled over the course, the corners have been cleared, and one corner near Lakeville, where there is an abrupt drop from the road to a field several feet below, has been banked. Brush and weeds have been removed also and overhanging branches cut away, so that the view of the road ahead will not be obstructed.

Though the official headquarters have been located at Garden City, the number of persons stopping there especially for the race is limited, as the hotel proprietors prefer to rent their accommodations this year to the regular guests whose stay is not limited, to the race period. The cottages surrounding the hotel, which last year were opened for the use of automobilists, are not under the hotel management this season, but are held by the local land company, which has leased an entire cottage to the Pope interests.

Both on the course and in the immediate vicinity, good hotels are not numerous, and accommodations of all sorts are not as plentiful as was the case last year. The new circuit was purposely selected away from towns and for long stretches is almost uninhabited, except by farmers or persons who own country places and who do not rent accommodations. At such hotels as there are, the accommodations have been practically booked now for both race meetings.

It is not likely that the elimination trials will attract nearly as large crowds as the final race on October 14. Persons in the trade or enthusiastic automobilists will no doubt form the bulk of the non-resident spectators, and many of them will drive down from New York and Brooklyn in time for the start of the race.

The course can be most directly reached from New York by the route from the East Thirty-fourth street ferry, which was followed last year in getting to the old course. From the ferry landing in Long Island City this follows Borden avenue into Jackson avenue, to Thompson avenue to Hoffman boulevard, to Hillside avenue (left turn). To reach last year's course, Hillside avenue was left at Queens road (right turn), but for the new course it is better to continue on to the end of Hillside avenue and take the last turn to the right, which leads directly into the Jericho turnpike (left turn), which can then be followed to the



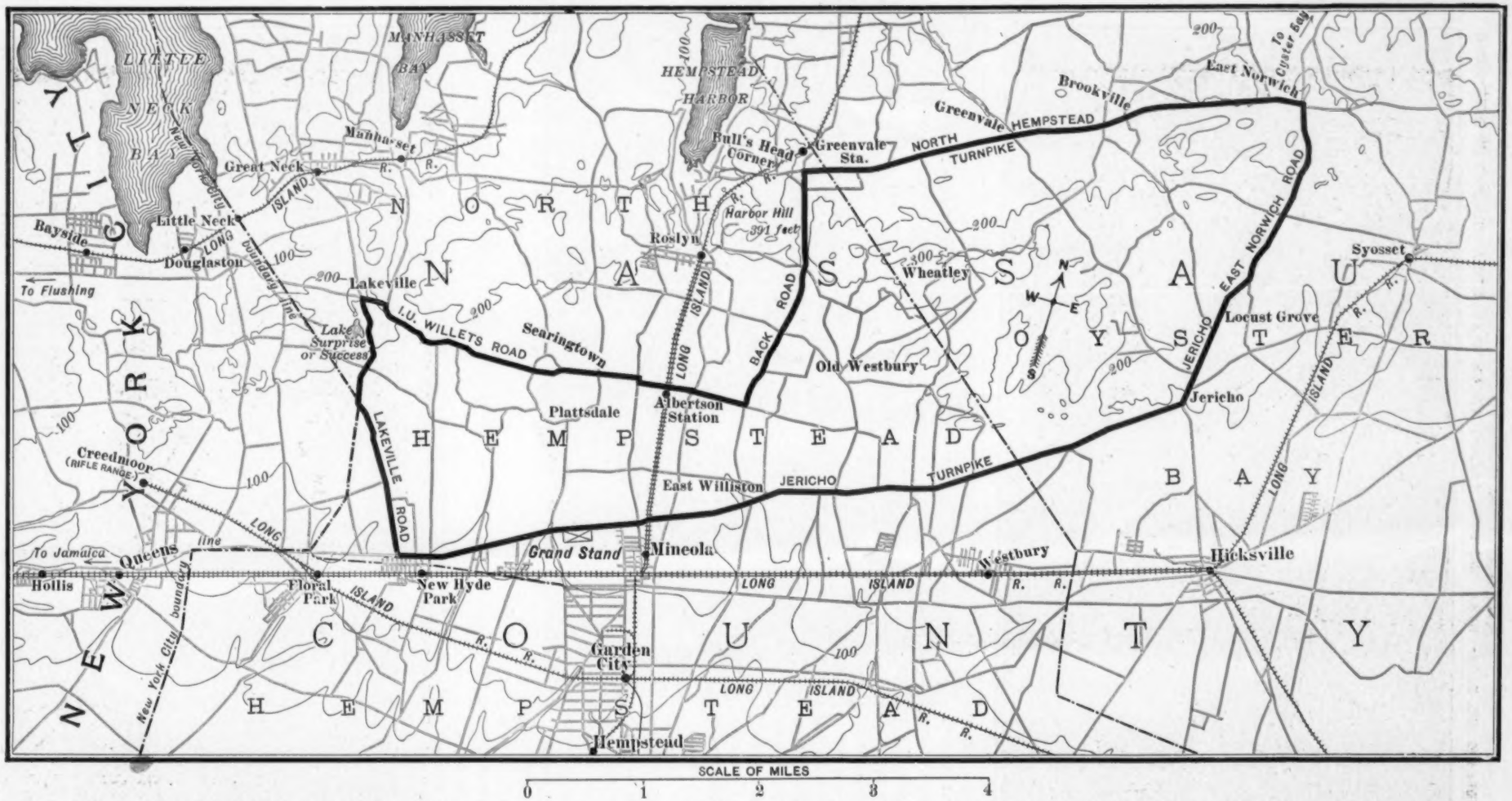

**OUTLINE MAP SHOWING RELATION OF VANDERBILT RACE COURSE TO ITS GEOGRAPHICAL SURROUNDINGS---COURSE IS INDICATED BY HEAVY BLACK LINE.**

## CHIEF CHARACTERISTICS OF THE AMERICAN CARS ENTERED FOR THE ELIMINATING TRIALS.

| No. | Car. | Driver. | Cylinders. Arrangement. | Bore | Stroke. | H. P. | Cooling. | Speeds. | Drive. | Tires. |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Haynes | Nutt | 4 vert | 5 | 6 | 50 | Water | Three | Shaft | Diamond. |
| 2 | Pope-Toledo | Dingley | 6 vert | 6 | 6 | 60 | Water | Three | Side chains | Diamond. |
| 3 | Matheson | Mongini | 4 vert | 5 | 6 | 40 | Water | Three | Side chains | |
| 4 | White | White | 2 vert | .. | .. | 40 | ..... | ..... | Shaft, direct | Diamond. |
| 5 | Locomobile | Tracy | 4 vert | 7 | 7 | 120 | Water | Three | Side chains | Diamond. |
| 6 | Christie | Robertson | 4 transverse | .. | .. | 60 | Water | ..... | Direct to front hubs | Diamond. |
| 7 | Royal | Jardine | 4 vert | 5 | 5½ | 40 | Water | Three | Shaft | Diamond. |
| 8 | Thomas | Roberts | 6 vert | 5½ | 5½ | 60 | Water | Two | Side chains | Goodrich. |
| 9 | Franklin | Winchester | 8 vert | .. | .. | 60 | Air | ..... | ..... | ..... |
| 10 | Matheson | Cooper | 4 vert | 5 | 6 | 40 | Water | Three | Side chains | ..... |
| 11 | Premier | Fisher | 4 vert | 7 | 5½ | 60 | Air | Three | Shaft | ..... |
| 12 | Pope-Toledo | Lyttle | 4 vert | 6 | 6 | 90 | Water | Three | Side chains | Diamond. |

## SCALE MAP OF THE LONG ISLAND COURSE FOR THE ELIMINATION TRIALS AND VANDERBILT CUP RACE.

**Drawn by our own Cartographer from U. S. Maps and other accurate data.**




*Note—Cars will start and finish at the Grandstand on the Jericho Turnpike near Mineola and will run counter clockwise or with the inside of the course to the left of the car.*

new Hyde Park corner, and thence along the course to the grand stand near Mineola.

For those who do not intend to occupy seats in the grandstand, the best vantage points are the turns at Hyde Park, Jericho, East Norwich, Greenvale (Bull's Head) and Lakeville. At these points there are wide roads leading into the circuit, and at Hyde Park, Lakeville, East Norwich and Greenvale there are hotels, that at Lakeville being of a better grade than is usually found in the district.

Parking spaces by the roadside are not as numerous as on the old course nor as easy of approach from the city. Starting from Hyde Park in the direction of the race, there are few places except cross roads where cars could be left until after the grandstand is passed. Beyond Mineola on the Jericho turnpike there are a few good unfenced fields, but bad ditches at the roadside. From Westbury on to Jericho there are some spots where one could run a car alongside the road, but many cars would not find sufficient room.

At Jericho, the connecting roads give ample space to leave cars and walk down alongside the course, but beyond this, along the Jericho-East Norwich road, there are no places to park cars and the road is narrow and winding, so that it is not a good place even for pedestrians. At East Norwich there is also plenty of room for cars on the roads running into the circuit, and the sidewalks of the town and the cottage verandas would doubtless give good resting places.

Along the North Hempstead turnpike the fields are enclosed with fences or high banks, and there are no vantage points for

LEFT-HAND SIDE OF WHITE STEAM RACER BUILT FOR THE VANDERBILT CUP RACE.—NOTE UNDERHUNG FRAME.

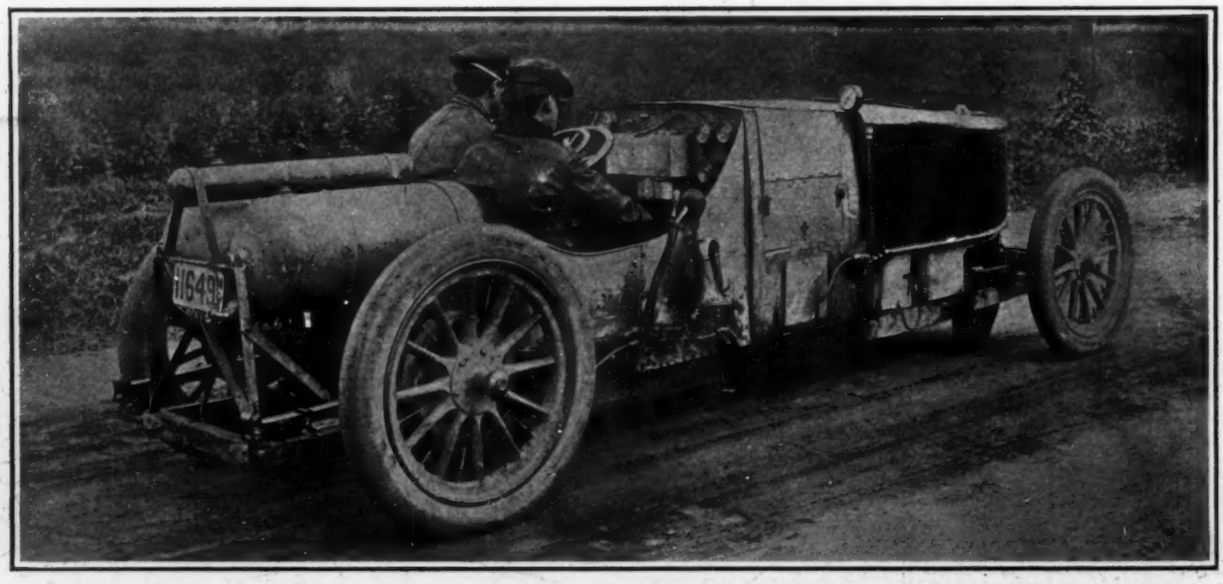
WALTER WHITE AT THE WHEEL OF THE WHITE RACER.—MR. WHITE IS AT THE RIGHT OF THE PICTURE, AS THE CAR STEERS FROM THE LEFT-HAND SIDE.

cars except at the cross roads. There are some good straight stretches on this section of the course where high speeds will likely be attained.

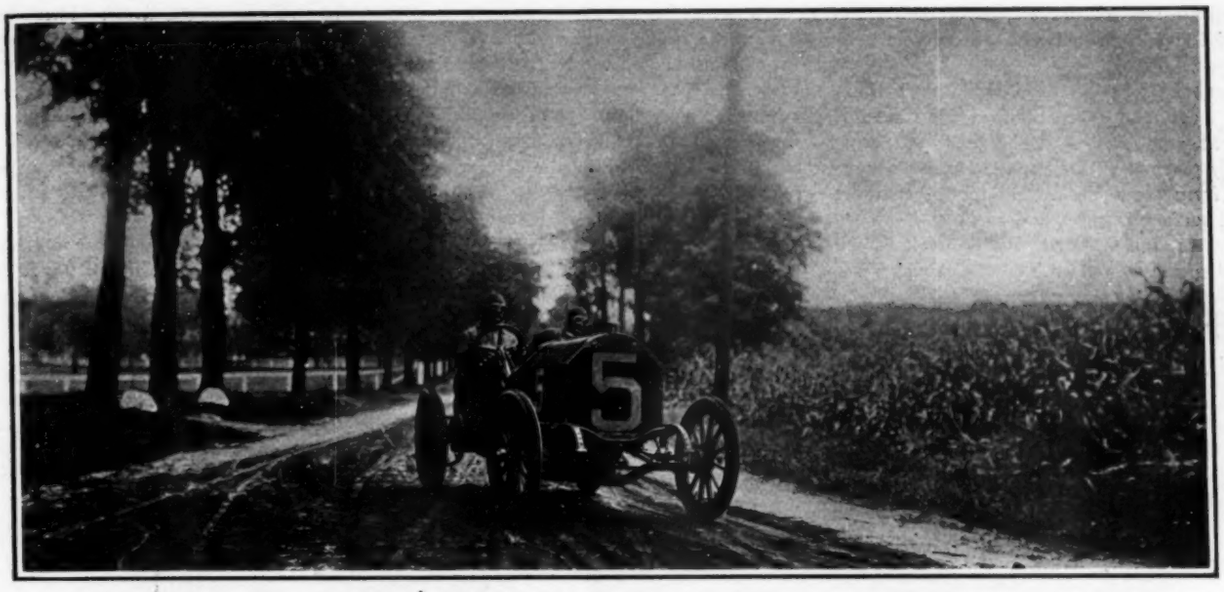
At the Bull's Head corner there are wide roads leading to the course, where a number of cars could be left, and there is an open field on the inside of the turn, which could doubtless be used by spectators on foot. Their view here is not extensive, however.

Further along the course there is a large, plowed field overgrown with weeds opposite the Mackay estate, where the course is wide and conditions favorable for good speed of the racers. No signs prohibiting trespassing are in sight, and cars could be driven onto the field from the road with a little care in getting over the bordering dirt property line.

At the turn from the Back road into the I. U. Willetts road, there is plenty of room for cars lining up, as this is a "cross roads," but the racing cars would not be in sight long owing to bends in the course. Fur-



RIGHT-HAND SIDE OF THE WHITE STEAM RACER LOOKING FROM THE REAR.—NOTE THE SUPPLEMENTARY BRAKE LEVER ALONGSIDE THE MECHANICIAN.

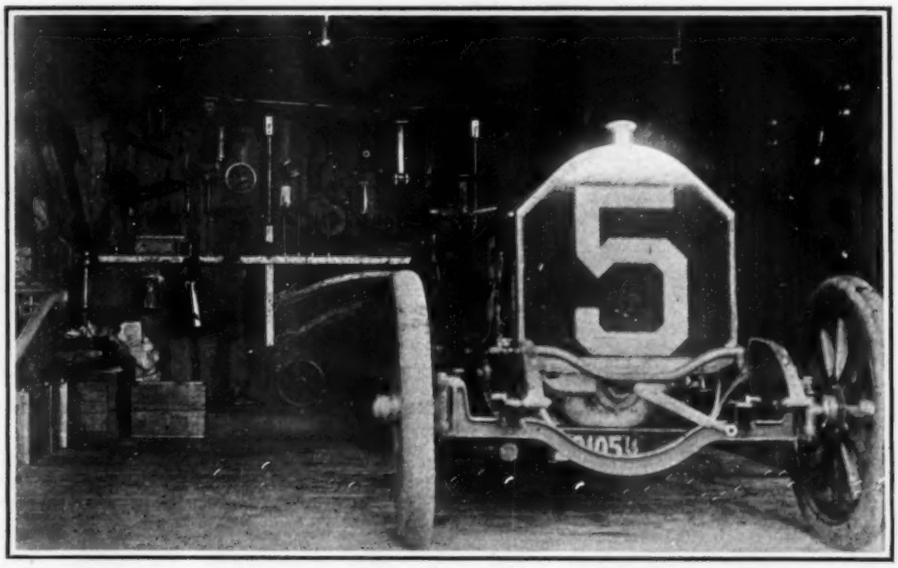



HUGE LOCOMOBILE RACER ON THE COURSE NEAR THE TURN AT LAKEVILLE, JOSEPH TRACY AT THE WHEEL.

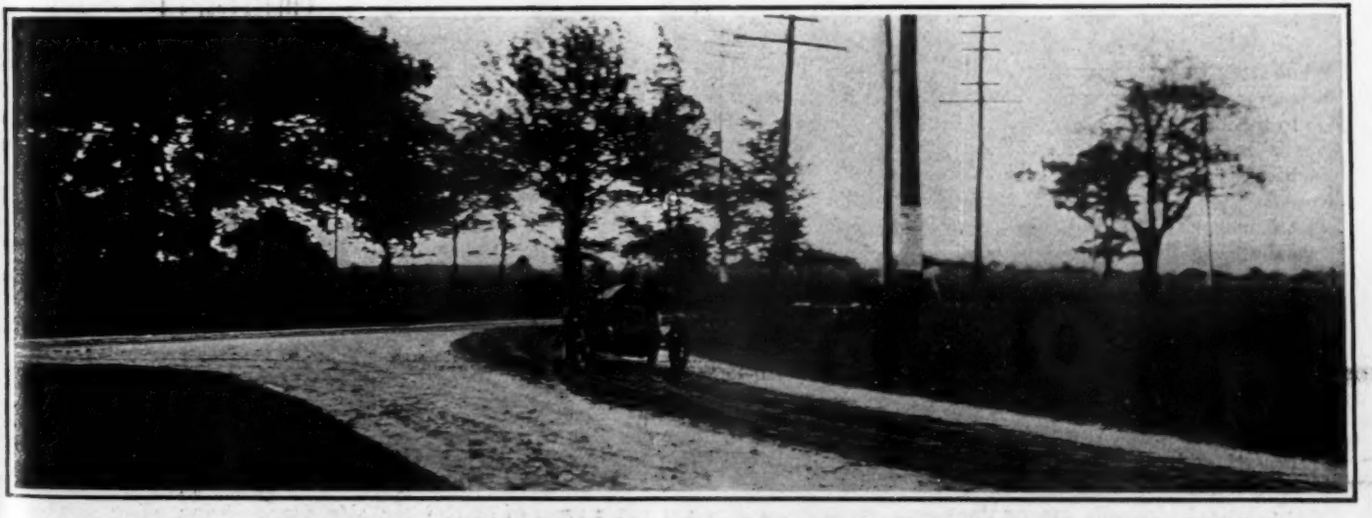
ther on, at the crossing of Willis avenue, is one of the best points to view the races. Visitors' cars could be lined up on Willis avenue, and there are good wide spaces at this crossing where one might sit on the grass and watch the cars "coming and going," though there are "No Trespassing" signs on some of the land.

From Willis avenue to Lakeville there are no places along the course where cars could be parked, and as this section of the course is very winding, the views from the roadside are mostly short. The only S curve on the course is on this section, and those who want to see quick maneuvering can be satisfied here, though the narrowness of the road would suggest safety in keeping inside the fences which border the high fields.

At the Lakeville corner there is also a cross roads and a good hotel and the surroundings are quite picturesque. The corner is an acute angle, and those who wish to observe the skill of the drivers can do




TEMPORARY GARAGE FOR LOCOMOBILE AT LAKEVILLE—NOTE SPARES ON WALLS.



VIEW SHOWING THE OILED TRACK IN THE CENTER OF THE COURSE TAKEN ON I. U. WILLETTS ROAD, NEAR WILLIS AVENUE.

so easily here and have a good country inn to fall back on between automobile sensations.

Between Lakeville and Hyde Park there is a large field on the side of the road unfenced, and this is the largest and most easily reached parking space for those coming from New York. On this stretch the road surface is good, and as there is a considerable fall toward Hyde Park, some good speeding will probably be seen here.

## First Cars on the Course.

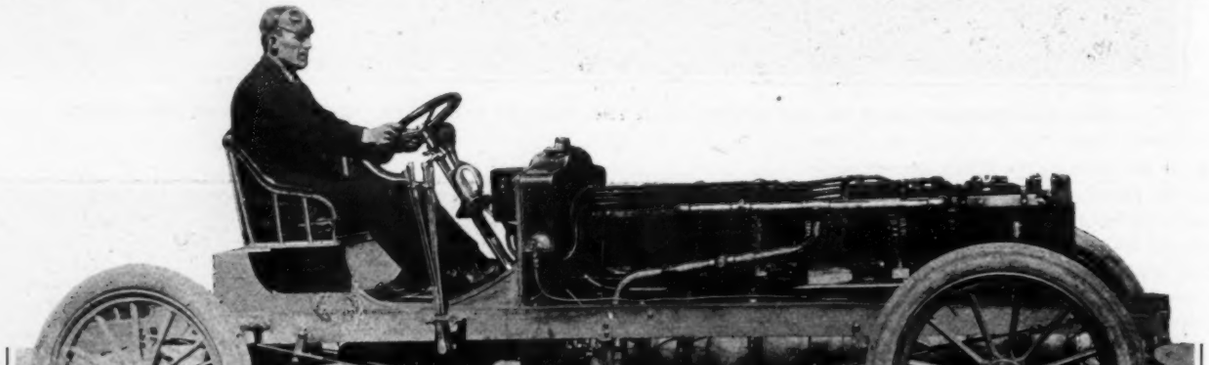
The Royal racing car is to all intents and purposes, a stripped touring car of the 1906 model with racing seats, a large cylindrical gasoline tank behind the seats and the steering wheel column set at an acute angle with the horizontal. The 1906 car, as a whole, is very similar to the 1905 machine. A few minor changes have been made, including the substitution of a worm and sector steering gear for the screw and nut arrangement used last year. The car is, of course, geared for high speed work, or about 60 miles an hour at 1,000 revolutions.

The White steam car differs from the White track racer in several details, though in many respects the two are similar. Owing to the long distance to be covered in the race it has been found necessary to fit the machine with a condenser in order to avoid frequent stops for water or the equally objectionable alternative of carrying an abnormally large water tank. The condenser surrounds the elongated bonnet, and gives the front end of the car an appearance decidedly different from that of "Whistling Billy," the track racer. The frames are underhung, bringing the car extremely low and leaving no more clearance than is absolutely necessary. A great deal depends on the springs in such a car, for should a spring break the frame will drag on the ground, instead of simply coming down on the axle, as would be the case with a car having the frame supported above the axles in the usual way. Notwithstanding its long wheelbase and considerable bulk, the White is a very light car, a great advantage for a car with an underhung frame. The tanks are placed behind the driver, over the rear axle.

The huge Locomobile, the most powerful machine among the American candidates for places on the team of cup racers, is with a few trifling exceptions exactly as it was when prepared for the Gordon Bennett race. The damaged intermediate gear has of course been replaced and the clutch repaired; and a slight alteration here and there has been made, according to the dictation of experience. It is hardly necessary to say that the driver will not have to go through the elimination trials with one foot dangling in the air for want of footboards, which were sacrificed to bring the car down to weight. Owing to its great reserve of power, the fine running of the car when it has had the opportunity, and the clever work of Joseph Tracy, the Locomobile is generally believed to have an excellent chance of making the team. As yet there has been no opportunity to see what it can do in the way of speed, as the motor has not been run on the course "wide open," and no remarkably fast time has been made, the driver apparently preferring to take no chances of mechanical mishaps and to bring the machine to the starting line in perfect condition.

At Lakeville, the Locomobile headquarters, a small building has been fitted up in a very complete manner for the big racing car. The interior was newly sheathed and electric lights were installed. Electric lamps on cables are hung at various points around the walls, so that if it becomes necessary to examine any part of the car a lamp is always within easy reach. Benches and vises are conveniently placed. Most conspicuous, however, is the array of spare parts hung on the walls. There are almost enough parts to rebuild the car, and all are hung in plain sight, where they can be instantly seen and laid hold of if wanted. The whole arrangement is simple and shipshape, and the little garage has about it a serious engineering atmosphere that is entirely in keeping with the appearance of the car.

Not far from the Locomobile garage is the headquarters of the long, low, six-cylinder Thomas car. Here a system of physical training for the driver and his mechanic is in force—decidedly an innovation, so far as American automobile racing is concerned. A professional trainer has charge of Roberts, and a course of regular meals, regular hours, plenty of sleep, vigorous rub-downs and other preceedings well known to athletes are employed to fit the driver for what is well known to be a severe physical task. Roberts has to stand a good deal of joking about his training, but takes it good-naturedly and contents himself with waiting to see what it will do for him.

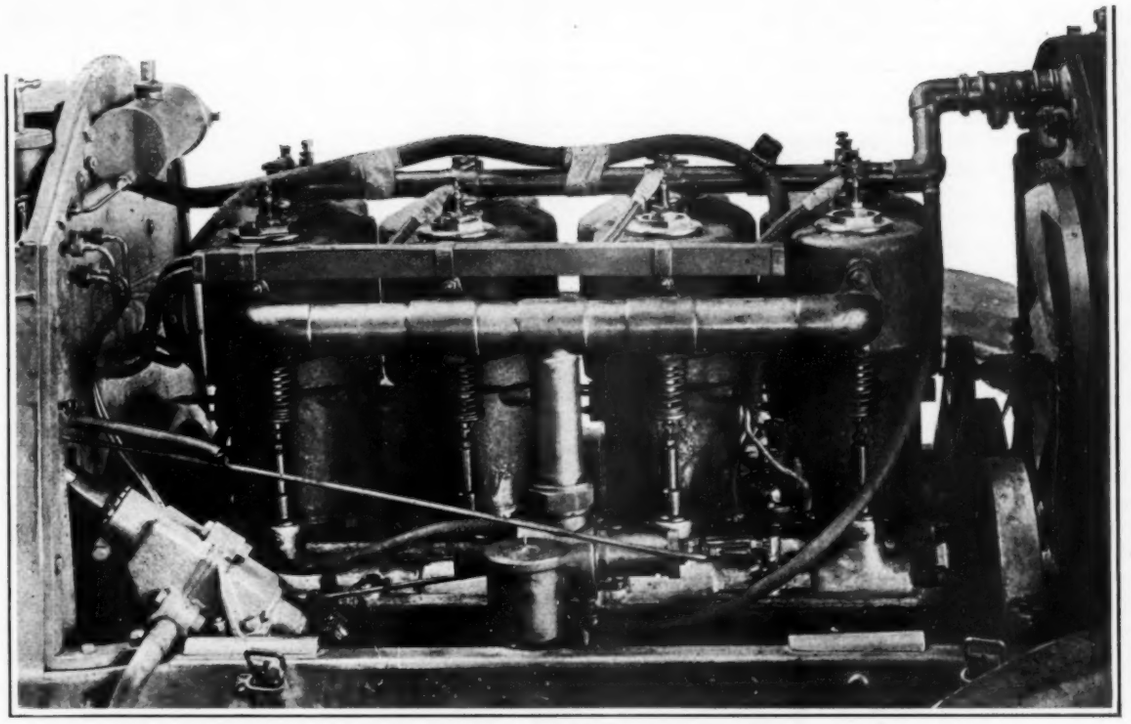


W. F. WINCHESTER AT THE WHEEL OF THE FRANKLIN EIGHT-CYLINDER AIR-COOLED RACER, No. 9 IN THE RACE

## Details of Haynes Car.

The 50-horsepower Haynes car entered for the Vanderbilt Cup race by Elwood Haynes, of Kokomo, Ind., is, on the authority of the manufacturers, a stripped touring car of the 1906 model the only changes made consisting in substituting a racing body for the regular touring body; no part has been either lightened or strengthened. An interesting feature of the construction, and one that will doubtless be well tried out in the forthcoming elimination race, is the roller gear drive to the live rear axle, which was illustrated and described in THE AUTOMOBILE of March 11 last.

The motor, two views of which are reproduced herewith, is bolted direct to the main frames by the usual crankcase arms, the side frames being offset to give the



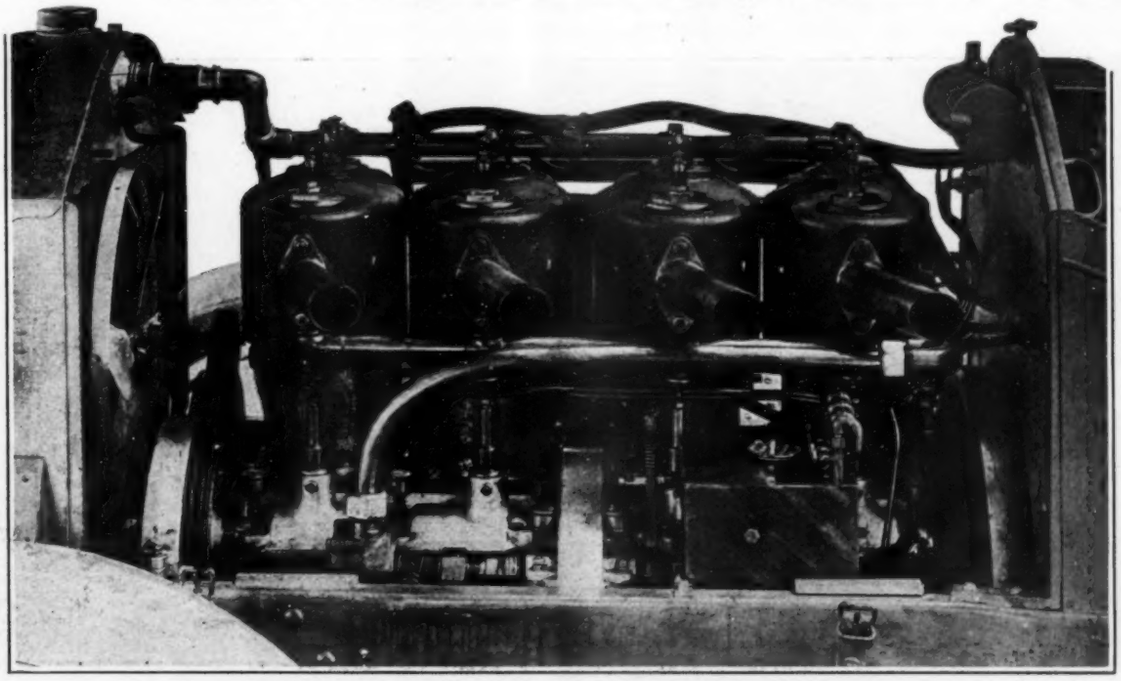
INLET-VALVE SIDE OF FOUR-CYLINDER MOTOR OF THE HAYNES CAR FOR THE ELIMINATION TRAILS.

necessary narrowness and reinforced with wood for additional stiffness. The four cylinders of the motor, which are 5 inches bore and 6 inches stroke, are separately cast with integral heads and jackets, and have their valves symmetrically located, the inlet valves on the right and the exhaust valves on the left. All valves are mechanically operated. Cams and push rods are enclosed and are oiled by splash from the crankcase, the end bearings of the camshafts being provided with compression grease cups. The two-to-one gears at the front end of the motor are also enclosed. The cooling system comprises a cellular radiator, belt-driven fan and gear-driven water pump. The current of air set in motion by the fan behind the radiator is assisted in its passage by the fanning action of the blade-shaped spokes of the flywheel.

An individual pump type lubricator is gear driven from the same shaft that drives the water pump; it is placed low on the left side of the engine, between the third and fourth cylinders, where the oil will be kept warm.

Ignition is by jump spark; and it will be noticed that a duplicate set of spark plugs is provided, so that if a plug becomes fouled or short-circuited the wire may be shifted to the duplicate plug. The regular plugs are placed over the inlet valves and the spares over the exhaust valves. Batteries furnish the current. The timer and the carbureter were made in the Haynes factory from designs by Frank Nutt, who is to drive the car in the elimination race. Both are located on the righthand side and may be seen in the engraving of the exhaust side of the motor.

Sliding gears give three forward speeds and reverse. The construction of the gears



EXHAUST-VALVE SIDE OF "FIVE-BY-SIX" MOTOR OF HAYNES CAR WHICH STARTS NO 1.

is such that when "changing down" it is not necessary to withdraw the clutch, as changes from high to intermediate, and from intermediate to low speeeds can be made without danger of damage to the gears. The clutch is of the drum-and-band type, controlled by a pedal, and can be let in very gradually and gently.

The engine is protected from the dust and mud of the road by a sheet steel pan, which extends to the rear end of the transmission gear box. The wheelbase of the car is 104 inches.

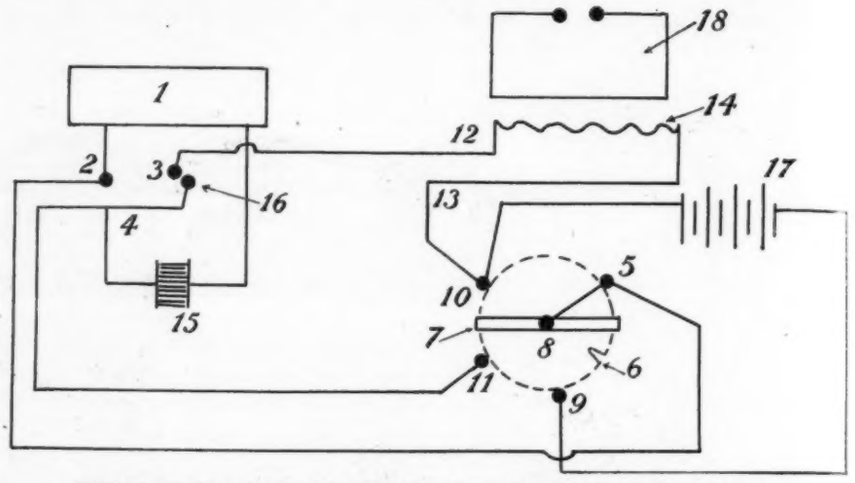
## Battery-Magneto Ignition System

The problem of finding the best ignition system for gasoline motors is so far from being settled that the following description of a system that finds favor with a leading French manufacturer will be of interest to American automobilists.

The Du Gros ignition system, used on Panhard cars, consists of a magneto and a storage battery, so arranged that they can be used alternately at the will of the driver. The magneto, *1* in the illustration, carries three binding posts, *2*, *3* and *4*. Post *2* is connected by means of a wire with the contact piece *5* of the special distributor *6*, which is so constructed as to allow the switching in or out of either magneto or battery by moving the handle *7*, which is fulcrummed at *8*. If so desired, both may be simultaneously disconnected from the coil.

The distributor *6* carries three binding posts, *5*, *9* and *10*, separately insulated from the metal body of the distributor, while a fourth post, *11*, is electrically connected with the axis *8* of the distributor blade.

The connections are worked out as follows: The terminal *12* of the primary winding of the spark coil *14* is wired to post *3* on the magneto, and the opposite terminal of the primary wire is connected to post *10* of the distributor. Post *4* of the magneto is joined first to post *11* of the distributor and second to a condenser *15*, the other terminal of which is connected with the magneto through binding post *3*. Finally, the contact breaker *16* is placed between the terminals *3* and *4*, while the battery terminals are connected with posts *9* and *10* of the distributor.

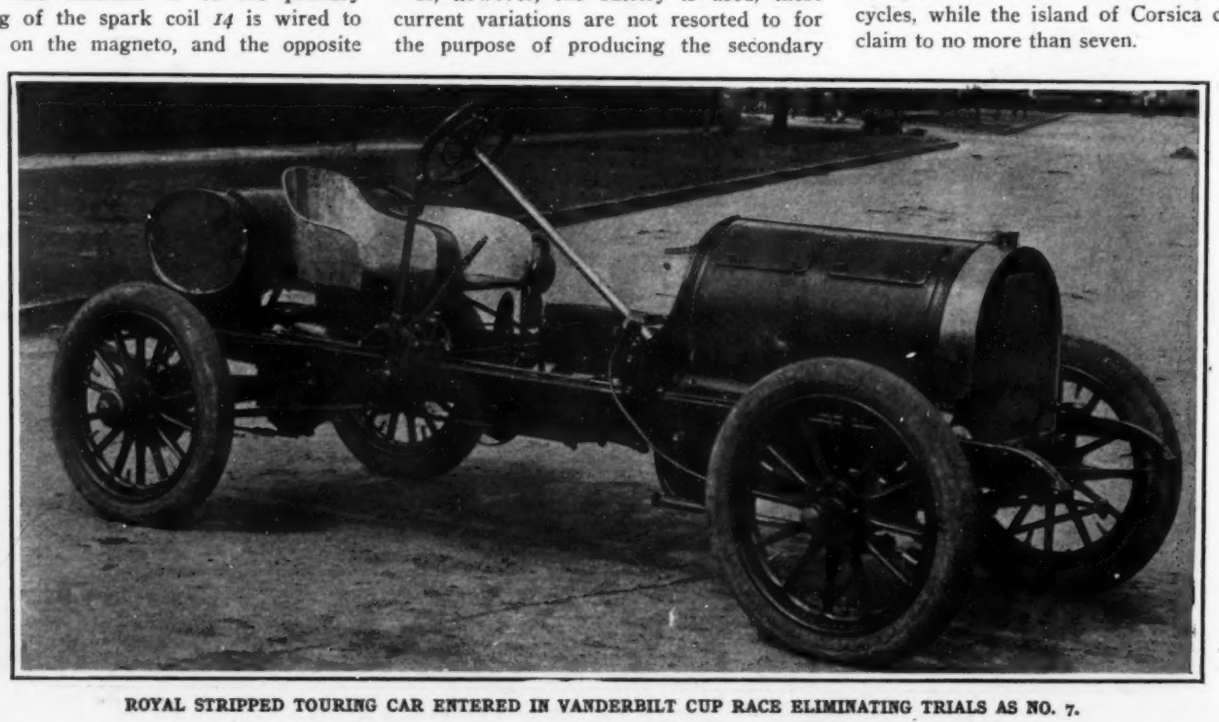



WIRING CHART OF DU CROS IGNITION SYSTEM USED ON PANHARD CARS.

In operation, the blades of the distributor are so placed that the current crosses from *5* to *8* and thence to *10*. The current may then follow one of two paths. If the contact breaker blade and screws are separated and the circuit consequently interrupted, the current will follow the path indicated by *2*, *5*, *8*, *11*, *4*, *16* and *3*, and will not cross the coil *14*. The consequent variations of current intensity in the coil will induce the necessary high tension current for the plugs.

If, however, the battery is used, these current variations are not resorted to for the purpose of producing the secondary current; the current is cut off entirely at the contact breaker. To accomplish this the path of the current is as follows: *17*, *9*, *8*, *11*, *4*, *16*, *3*, *12*, *14*, *13*, *10* and *17*, it being impossible for the current to pass through any other route. The system is then like any ordinary jump-spark system.

**As is shown** by official statistics just published, the motorcycle is increasing in popularity in France. On the first of January of this year there were 27,435 motorcycles in use in the whole of France, this being an increase of 28 per cent., or 7,611 machines on the previous year. They are the most numerous in the Department of the Seine, where there are at present 5,852 in use, an increase of 1,588 on last year's figures. Next in order of increase is Seine-et-Oise, with 234 more than last year, Seine-Inférieure with 206 more, the Nord with 179 more, and the Rhône with an increase of 136. The Cantal has only 29 motorcycles, while the island of Corsica can lay claim to no more than seven.



ROYAL STRIPPED TOURING CAR ENTERED IN VANDERBILT CUP RACE ELIMINATING TRIALS AS NO. 7.

# Automobile Schools in New York.

(*Concluded from Issue of September 14, page 279.*)

MANHATTAN AUTOMOBILE SCHOOL, INC.

THE other automobile schools of Manhattan are of a much more informal character than the Y. M. C. A. Most of them are only just starting for the first time this fall, although one or two have been in operation during the summer, and one is in its second year.

One of the new ones which announced its opening on September 12 is starting in a modest way but has serious men behind it who apparently are well qualified to give instruction in this particular branch of mechanical work. This is called the Manhattan Automobile School, Inc., "for owners and mechanicians." It is located in a one-story brick garage building just nearing completion at 315-321 West Ninety-sixth street, near Riverside Drive. The promoters and instructors are Forrest R. Jones and Edward J. Kunze. The school announcement shows that Mr. Jones is a graduate in mechanical engineering of Cornell University, and has for fifteen years taught mechanic arts and machine design in the University of Tennessee, University of Wisconsin, Worcester Polytechnic Institute and in Sibley College, Cornell University. He has also been engaged in commercial engineering construction and is a skilled mechanician. Mr. Kunze likewise is a graduate in mechanical engineering of Cornell and has made a special study of oil and gas engines. He has been engaged in commercial designing and construction of explosion engines and also is skilled in mechanical practice. Professor Jones is the author of text-books on machine design, in two parts, that are still used in Yale College, and of a text-book on iron, steel and alloys, 1895, still used in the University of Wisconsin. He also revised the gas engine course written by S. A. Moore for Cornell University.

Notwithstanding this special training in technical educational work, it is not proposed to conduct a school of automobile engineering; should any one care to take such a course, it can be given, but would be a special course and necessarily quite expensive. The main purpose is to train young men who already possess a mechanical bent or some education and skill in mechanics to become qualified operators of automobiles. There is no lecture room, all study being directly from the machine and its component parts, the theory and practice going hand in hand and all explanation being illustrated with the object. Neither text-books nor written examinations will figure in the work. As the instruction will be given in the large main room of a garage where cars of different makes are being stored and repaired constantly for customers, the students will have opportunity to observe closely all forms of construction and to see the cars in all stages of dismantlement. Instruction is to be mainly in gasoline machines, owing to their predominance, but steam will not be neglected. If desired, men will be trained in the operation of electrics and in the care of storage batteries and the wiring of machines.

Owners and mechanicians are to be divided into two separate classes, the training of mechanicians constituting the regular course. Owners are to be given special instruction as desired, at special rates. They will be at liberty to bring their cars to the garage and be given particular instruction with regard to their own machines. They can have general instruction in the principles of the gas engine, the carburation, ignition, change-speed gearing, differentials and steering, or, if preferred, will be given only road lessons in driving, with such incidental explanation as is necessary to a clear understanding of the operation.

Contrary to the methods of the other schools, the Manhattan Automobile School will not devote a great deal of time to teaching actual road work in the regular mechanician course. The reason given for this decision is that a number of automobile agents doing business in the metropolis have told the instructors that they would prefer to take men who have been given a thorough understanding of the functions of cars in general but who had not acquired familiarity with any one make and have them become accustomed to their own makes of machines.

The regular mechanician course is to cover a 100-hour period of either four weeks' duration with instruction five hours a day for five days a week, or of eight weeks with instruction for two and a half hours daily. Of this, not to exceed twenty-five hours will be devoted to road training. Examinations are to be oral, and certificates will not be given, Professor Jones says, unless he is satisfied that the student is competent mentally and physically at least to operate and care for a car in an efficient manner. So far is is practicable, the man's moral qualities will also be ascertained and taken into consideration. If found undesirable, a man's continuance of the course is likely to be discouraged.

Tuition for the regular course is $60, payable in three equal installments in advance.

A night class will be started to accommodate those who cannot spare time during the day. Certificates will be given at the end of the courses to those who finish the mechanician course satisfactorily, and to no others.

NEW YORK SCHOOL OF AUTOMOBILE ENGINEERS.

Under the name of the New York School of Automobile Engineers, another new educational institution along similar lines is preparing to open on October 1 at 146 West Fifty-sixth street. A number of the leading men in the automobile trade of the city are directly interested in this new school, and with their active cooperation in the way of loans of cars and parts and in delivering talks before the students, it should be easily possible for those who take the course in earnest to acquire a good working knowledge of automobiles. The managers of some of the garages and branch automobile stores in New York are earnest believers in the need for such schools as a means of protecting both manufacturers and owners against careless, ignorant and unscrupulous chauffeurs by supplying the demand for a better class of operators.

The young men in the trade who are interested in the undertaking have incorporated it under the name stated and have leased a three-story brick building on Fifty-sixth street, where lecture rooms will be fitted up, a small library started, a workshop installed and all the various parts and fittings of automobiles gathered together for study. Components of the chassis will be shown separately and in groups and combinations, illustrating every step and function up to the complete car with the engine and transmission in operation. It is intended to make this the most complete plant of the kind ever fitted up in this city.

The course of instruction has been shaped by Prof. Charles E. Lucke, consulting engineer and instructor of mechanical science at Columbia University, who will deliver many of the lectures. Additional instructors will be drawn from among the graduates of the school later on, and negotiations are now being made to secure a competent assistant instructor who is familiar with both the theory and practice of gas engine work. Professor Lucke is taking much personal interest in the work, and has made a number of suggestions as to the arrangement and equipment of the rooms. One of these suggestions is the installation of a "home trainer," a system of parallel rollers arranged under a platform so that a car can be run upon it with the wheels resting on the rollers and the machinery set in motion so that the action of the change-speed gears can be studied and the gears shifted while the car stands still.

The study course is to embrace from 120 to 140 hours of indoor work during five or six hours every day in the week. Classes will be divided into two-hour squads, the squads going from one instructor to another in the different branches. A series of twelve lectures will be given by Professor Lucke, and these will be supplemented by lectures on the law of the road, legal matters and operation by others. Practical road work will be given at the end of the course. Care is to be taken in selecting students, only those able to give references as to sobriety and good character and who pass a brief examination as to general qualifications being accepted. Diplomas will be given to those who finish the course satisfactorily, and it is the aim to make the diploma a sufficient recommendation that the possessor

is competent to keep any make of car in good working order and to avert the little ailments which cause stoppage and annoyance.

A night course, similar in all respects to the day course but covering a period twice as long, will be conducted. Special instruction will be given to owners who are willing to pay special rates for it. The tuition for the regular course is $75.

The president and general manager of the school is H. D. Cashman, located at 148 West Fifty-sixth street. There will be an advisory board composed of ten or twelve of the best known men in the automobile trade in New York City.

Automobile School of New York.

A school that has been in practical operation in New York for two years and is conducted by the same management as the parent school in Boston and similar institutions opened this summer in Philadelphia and Chicago, is known as the Automobile School of New York. It is located at 742 Seventh avenue, at the corner of Forty-eighth street, in a garage where a limited storage and repair business is done, more for the benefit of the students than for revenue. The school is conducted by partners, L. N. Walleston and G. A. Pulsifer, the former an automobile operator and practical machinist of Boston, where he started two years ago the first of a series of schools which in two years more is intended to embrace thirty-seven cities. Mr. Walleston, who is the senior partner, is now in Chicago getting a new school started there. Buffalo is to be the the next city attacked. Arrangements are to be made whereby a student beginning his studies in the schools of this city can continue them in another city in case of a change of residence.

No casual observer, entering the quarters in New York, which open directly off of Seventh avenue, would dream that he was invading a place of learning or an educational institution. It has none of the ear marks usually associated with such places; there is a notable absence of that quiet and order commonly supposed to be essential to good study. The interior of the one large room looks more like a junk shop or ordinary machine repair shop than a class-room. Passing two little rooms at the front that shut off most of the light from the show windows, the intruder, when his eyes become accustomed to the interior gloom, descries half a dozen out-of-date gasoline cars of uncertain make standing near the side walls and near the rear of the room several broken down cars undergoing repairs or awaiting the conspicuously needed attention of the repair man. Wandering about the room, in an apparently aimless way, are a dozen young men of nondescript appearance, wearing hats tilted at all angles and with hands in their pockets. In the darkest and least disturbed corner of the room a group of six or eight of the men are gathered closely about a small table, some partially sitting upon it. Seated at one end of the table is an instructor explaining to his attentive hearers the mysteries of a battery connected to a spark coil and plug. In many places the ugly brown wall-paper is stripped off the walls and ceiling, exposing the white plaster, and in other places it hangs loose in strips. At the work bench in the extreme rear there is pounding or filing that is the inevitable accompaniment of repair work.

In one of the little offices in front, cut off from the room by an eight-foot board partition painted green, sits the manager in white negligée shirt at a desk, asking a little Jap when he thinks he "can come and take up," and learning that the Jap has a friend who "knows better as me," and with whom he will consult regarding the matter.

Outside, on the asphalt pavement of the broad Seventh avenue thoroughfare, there are two or three ancient gasoline cars, each of which seems to be the center of great interest, for a group of half a dozen young men. In one car of unrecognizable make an anæmic young man is timidly moving first one lever and then another, letting the clutch in somewhat spasmodically as he grips the steering wheels with nervous tension, and wearing a worried look. By his side sits another man showing him what to do next. A burly negro, who does the repair work, and is familiarly called "Sam" by everybody, is concealed from his waist up in the rear door of a tonneau of another machine, laboring good-naturedly over the obstinate engine of the horizontal, under-the-floor, single-cylinder type. Sam is evidently an important personage, despite the absence of a collar or jumpers and the presence of much grease and grime, for he has the run of the place.

Uninviting as the school and its surroundings look, it is probable that the school fulfills its purpose acceptably; in fact, one young fellow who took the course during the summer just passed and who has just secured a "job" to drive a large touring car for a private owner, states that he feels that he got enough for his money and that one can learn a good deal if he looks out for himself, though it is a case largely of every-one for himself. The school, he says, is always ready and willing to assist one of its graduates to obtain a position and to help him out of trouble with a car after he first takes a place.

The plan of instruction is in reality more formal and better organized than appears on the surface. The course is divided into twelve indoor lessons, beginning with the carbureter and going through the ignition system, the engine, the clutch, change-speed gearing and differential, assembling, cleaning, oiling, and on to the tires. There are four instructors, who are graduates of previous terms in the school, and classes are in continuous session. Should any student appear not to have clearly understood the operation of any part after a lesson, he is privileged to take the same lesson over again from a different instructor. Neither books nor pencils are used. After the entire course has been completed, however, certain books are recommended for the student to read.

Pedal and lever lessons are given inside before the actual road instruction begins. When a student has shown his ability to drive through Central Park, around the block and to run a car into and back out of the garage without mistakes and without hitting anything, he is considered entitled to a certificate and a license is obtained for him from Albany, at his own expense. The school keeps in close touch with employers by circularizing owners of automobiles registered by the Secretary of State and owners of auto boats, and seeks to find positions for its graduates.

Only $25 is charged for the full course, of which $10 to $15 cash down is required upon entering the school and the balance when the road work begins.

Besides the different schools described herein, there are several chauffeurs who offer to teach men to drive cars for a consideration, and one or two schools whose methods, however, are similar to those of one or other of the schools described.

## Side Show for Salon.

In addition to the exhibition of pictures and other works of art having reference to automobiling, a retrospective exhibition of drawing and engraving concerning automobiles and cycles will be included in the Paris salon next December. The Automobile Club of France possesses a fine selection of historic automobile engravings, and these, together with the large number of private works which are expected, will form a graphic history of the rise and progress of automobilism. The complete display of hotel chambers, which was a feature of last year's Salon, will not be repeated this year; but special hotel features of interest to automobilists will be accepted. An exhibition of new inventions concerning automobiles and cycles will be inaugurated. Designs and plans will be accepted, for which only a limited space can be allotted to each exhibitor, entries being accepted free of cost, and only those inventions will be exposed which have never before been brought before the public.

**The Rome** correspondent of the London *Pall Mall Gazette* writes that the Eternal City will shortly be provided with six motor watering carts. The new motor water carts have a 16 horsepower, hold about 5,000 litres of water, and can go something like 19 miles an hour on the level when full. The innovation is that the sprinkling is done from the front, by two fans, which throw the water only to the desired distance, having a minimum spray of two or three inches and a maximum of 37 feet from each wheel. In fact, the driver has it all in his own power and under his eye, while by the old system he saw nothing, the water coming from behind, and had little control over the spray.

# Practical Hints for the Autoist.

By G. A. RAGE.

PERIODICAL examination of the tires when running is likely to prevent a good deal of trouble. Frequently nails, pieces of glass, scraps of wire and other objects detested by automobilists stick into the tread far enough to prevent their falling out, and hang there for mile after mile, getting an occasional favorable pressure to drive them further in. If not caught in time a puncture will result; but an occasional examination will reveal these pests, when they can be removed and put where they can do no more harm. Do not throw them back in the road again for some other fellow to pick up.

* * *

About this time of the year an automobile is apt to show signs of use, if it has been run a good deal. This does not necessarily mean that the car is not a good one; it simply means that a certain amount of wear and tear is inevitable, and even if the car has not given a moment's trouble throughout the season it should be looked over carefully to see how it has stood the work. Nuts may jar loose; cotter-pins may be lost; gears may be a trifle loose on their shafts; oil holes and pipes may be partly or wholly clogged; valves may be pitted and require grinding; steering gear joints may be, and probably are, loose, allowing excessive play at the wheel. These and many things will at once occur to one who is familiar with his car that may need attention. The fact that a car has run for the whole season with little or no attention beyond oiling, cleaning and filling up tanks is all the more reason why it should be examined, as the owner may be lulled into a false sense of security by the good behavior of his car, while all the time something is gradually working around toward trouble. Watch the machine carefully, no matter how well it behaves, and trouble will be saved.

* * *

A rather curious incident occurred recently a few miles out of New York, and the story points to its own moral. An automobilist driving a light touring car was treated, during the course of a spin, to the well-known hissing that announces the establishment of communication between the air-chamber of a tire and the atmosphere. The driver got out and found a fantastically twisted horseshoe nail in a rear tire. This was removed, the puncture repaired and the car proceeded. A mile further on the same thing occurred, and the driver, with feelings not of the smoothest, alighted to make another repair. He was astonished to find the same identical nail in the tire not six inches from the spot where it had entered the first time. The automobilist then recollected that he had carelessly dropped the nail on the ground when he had removed it the first time, and it dropped, presumably directly in front of the tire. The result was a foregone conclusion. The automobilist states feelingly that he will hereafter put such things into his pocket until he comes to a good, deep river or lake where they can be properly disposed of.

* * *

Gasoline should be used very sparingly in the cylinders; it is just as well to avoid its use altogether, though it is frequently very convenient, when the motor refuses to start, to inject a little into the cylinder. The trouble is that it is capable of taking lubricating oil off the bearing surfaces with such thoroughness that some little time is required to restore the film of oil that is essential to proper working.

* * *

The metric system of measurements, which is commonly used by French automobile manufacturers, is apt to be considered a nuisance by the average American, to whom the measurements of a cylinder, given in millimeters means nothing. The weights are about as intelligible to him. It is a simple matter, however, to multiply the millimeters by .03937 to obtain the equivalent in inches. In the case of meters, multiply by 39.37 to obtain inches and by 3.281 to obtain feet. Kilometers multiplied by .621 gives miles. Kilogrammes multiplied by 2.2046 gives pounds. Litres multiplied by .2642 gives gallons of 231 cubic inches. These are the units that are most commonly met with in connection with the automobile. After figuring out the equivalents a few times it will be found that metric measurements begin to convey ideas of size, weight or distance, just as do the more familiar terms; and once the system has been made familiar its convenience is obvious.

* * *

The owner of a single-cylinder runabout recently discovered a cause of noise that was, to him, a novelty, and it may be new to others. For some time he had noticed a very slight rapping or knocking that defied his efforts to locate, and which very gradually increased until it became a genuine knock, though a light one. The knock was accompanied by a slight rattling sound that indicated the looseness of some part. Finally the trouble was located. The camshaft was driven by a spiral gear, and this had worked loose and slid a short distance along the shaft, first one way and then the other, bringing up with a smart rap each time. The key prevented the gear turning on the shaft, but allowed end motion. A new and tightly fitted key put an end to the trouble.

* * *

There are few methods of transmitting power equal in efficiency to a good chain and sprocket drive—that is, when the chain is clean. When the chain gets clogged up with the well-known mixture of oil and mud, caked hard, and runs with insufficient lubrication, it falls very far short of its possibilities. While it is impossible to keep an exposed chain as clean as it should be to get the best results, it is nevertheless possible to keep it in fairly efficient condition by frequent cleaning and lubrication. A chain, like any other mechanical detail, will last longer and give better service if kept clean and properly lubricated.

* * *

The automobilist, especially if inexperienced, is apt to jump at the conclusion that there is something loose inside his engine if he hears a knock. This is not necessarily the case. The noise may be produced by pre-ignition. A sprung shaft will allow the fly-wheel to wobble and possibly touch some adjacent part of the engine at every revolution, and a badly battered gear tooth will raise quite a respectable knock. When the knock is really inside the motor it does not necessarily follow that something is loose. For instance, the crank-pin may not be exactly at right angles with the bore of the cylinder, so that when the crank is at its highest point—say, at the commencement of the power stroke—one end of the crank-pin will be a shade higher than the other end. The big end bearing of the connecting rod has a little play endwise on the pin; and when the pressure comes on the bearing it will naturally be forced toward the lowest end of the pin and will bring up with a knock. On the suction stroke the pull will be in the opposite direction, and the bearing will slip over to the other end of the pin with a weaker knock, owing to the lesser pressure.

* * *

In replacing pins that have been lost or broken—not cotter-pins and the like, but through pins, such as would be used to pin a gear to a shaft—notice carefully whether the hole is straight or tapered. If straight, the fitting of the pin is the simple matter of getting a piece of steel of the proper diameter; but if tapered, it is a different matter. The pin should be given the proper taper in the lathe and carefully fitted by hand, if necessary, as a final operation. A taper pin that is tight only at one end is sure to cause trouble in time, if subjected to any strain.

* * *

Emery in the wrong place is terrible stuff, for the qualities that make it valuable are just as prominent if a few grains are lodged between the piston and cylinder wall as when the emery is doing its legitimate work on a valve seat. Take every possible precaution to keep emery away from places where it is not meant to be when grinding valves, and when the operation is completed wipe away every particle of the powder, finally washing the valve seating with gasoline.

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**It is** the automobile repair shop people and not the plumbers, who wear diamonds now.—*Connersvillle News.*

# Auto Boat Races in National Carnival.

## E. R. Thomas's "Dixie" Wins International Cup, "XPDNC" the National Cup and "Durno" the Interstate Trophy.

By W. P. STEPHENS.

THE National Association of Engine and Boat Manufacturers was organized about a year ago for the purposes of protecting and advancing the interests of the engine and boat trade, its membership including most of the engine and boat manufacturing concerns of the United States. Although the Automobile Club of America has filed a claim to the control of all racing in high-speed launches, and the American Power Boat Association has gone still further in establishing rules and actually managing a number of races within the past three years, the new association has deemed it necessary to take launch racing under its protection as well, with still another code of measurement and racing rules. The measurement rule, which has already been published in THE AUTOMOBILE, varies considerably from that of the A. P. B. A., one point of difference being the actual weighing of all launches under 15,000 pounds. For the encouragement of racing under its rules, the association has established three permanent trophies—the International, the National and the Inter-State trophy.

To inaugurate its control of racing, the N. A. E. B. M. announced last winter a national motor-boat carnival, to be held on the Hudson River in New York this month, and the scheme found its realization on the last three days of last week. The central point of the racing was the long city pier at the foot of Ninety-seventh street, North River, a quarter of a mile above the station of the Columbia Yacht Club. The pier presented few advantages either to contestants or spectators, as it is high above the water, with no landing stages, and the launches could only tie up or make landings alongside of the stone and coal barges mooring to it or near by. The unloading of coal and the garbage dump in active operation at the head of the pier provided dust and dirt in unlimited quantity. The northwest corner of the pier was covered with an awning and roped off to make a shelter for the committee and the press, but there were no seats, making it necessary to stand all day long. The Iron Steamboat *Sirius* was chartered for the three days, carrying spectators from the pier, but she was too slow to attempt to follow the races.

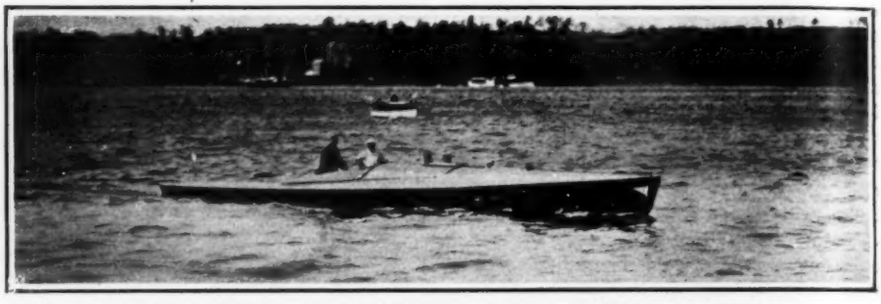
The committee, Messrs. Anson B. Cole, Charles T. Power and A. H. Whitman, with the measurer, F. W. Belknap, started and timed the boats from this point, the starting in most cases being done on the handicap times. A framework out over the river carried the designating letter and number of each boat, these being withdrawn on the gunfire, leaving the letter and number of the next exposed. The arrangement worked well, but the interest in the races on the part of the spectators would have been much greater if a large blackboard had been provided on which the handicap times, times of each round and number of rounds were written from time to time. As it was, one had great difficulty in following the various events. A large and elaborate pamphlet was prepared by Secretary Gamble as the official program.

The entries numbered thirty-five launches, of every description, from the open 20-footer up to cabin cruising yachts of 70 feet, and had the majority started in each event there would have been some good racing, but less than half this number accomplished anything worthy of note. The fleet was in three divisions—high-speed launches, three classes; cruising launches, two classes; open launches, one class.

The entries in brief were as follows: Division 1, Class 1, 12 meters or 39.37 feet: *Dixie* ran regularly every day, as did *Shooting Star II.*; *Winton* started twice and withdrew; *Flying Dutchman*, engines could not be started; *Six Shooter*, the new Oldsmobile racer, started twice and withdrew; *Wizard* made the Poughkeepsie run only; *Panhard II.* started four times, but never finished, once disqualified; *Rochester* not present; *Den*, the new Herreshoff-Hodley gasoline-compound wonder, credited with a speed of 40 miles in the daily papers, started twice, and each time stopped within a few minutes.

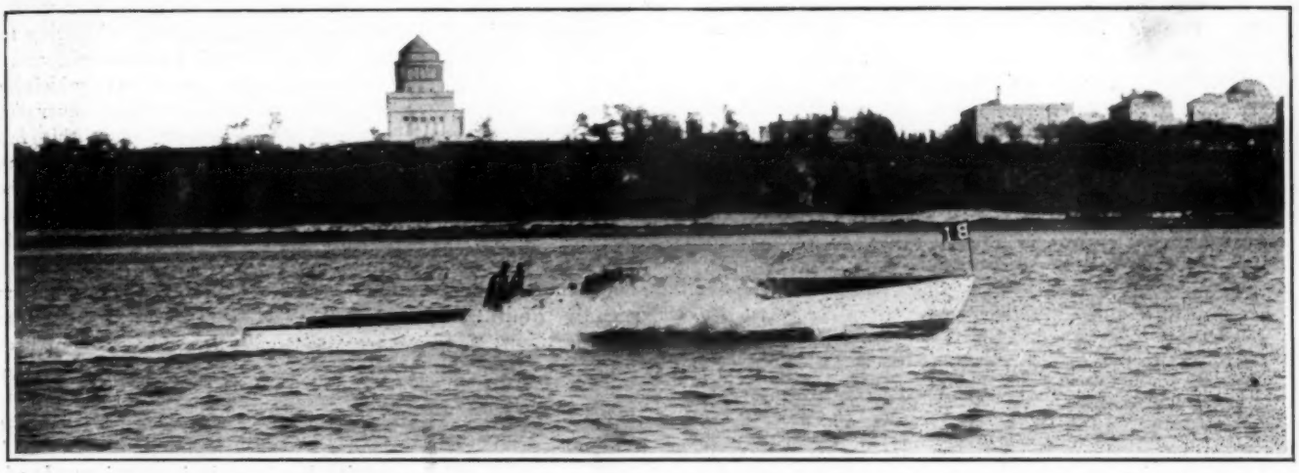
In the second class of this division, 40 feet and over, were *XPDNC*, running regularly in each of the three series races, as did *Skeeter*, and the new Gielow launch *Veritas*, built under lock and key last winter, with a Craig engine similar to that in *Onontio*. She made just under 25 miles on the first day, broke her clutch on the second day, broke down in the first race of the third day, and finally finished the course in the last race at slow speed. In the third class, not over 33 feet, were *Simplex III.*, a new Smith & Mabley launch just from the shops, doing excellent work until she bent her shaft on Saturday; the little open launch *Durno*, which ran by way of Lake Ontario, the St. Lawrence and Lake Champlain from Rochester to New York; *Rosebud*, one of the sheet-steel "Beavertail" models, performing the most wonderful gyrations in the apparent attempt to walk upright on her tail like Alice's walrus, and *Vici*. *Panhard I.* of last year was present but did not start, and several other entries were entirely absent.

In Division II., Class 1, cruising launches over 50 feet, were the new *Cactus II.* just home from the St. Lawrence cruise of the A. P. B. A., *Argonaut* and *La Mascotte*, all true cruising craft; the Lozier *Beldam* was entered, but did not start, doing patrol duty. The smaller cruising class included three boats—*Hazel*, a very bulky cruiser; *Arcadia*, and *Glissando*, winner of second prize in the recent race to Marblehead. Division III. open launches, included *White Fox, Traveler, August Mietz*, with kerosene engine and *Chum; Little Star* did not start.



"XPDNC," WINNER OF NATIONAL CUP, OWNED BY SIEGEL & GILLIG.

E. R. THOMAS'S "DIXIE," WINNER INTERNATIONAL CUP, FITTED WITH SIMPLEX ENGINE.



ALEXANDER STEIN'S NEW LAUNCH "VERITAS," GOING FULL SPEED OVER HUDSON RIVER COURSE IN FRONT OF GRANT'S TOMB

though present, and *Linus J.*, of Rochester, was not on hand.

The first day, Thursday, September 14, was set for one race of each of the six classes over three rounds of one of the two triangles of 10 nautical miles and 6 1-2 nautical miles laid out on the Hudson with the starting and finish line off the pier.

On Friday there was but one race, to Poughkeepsie and return, a distance of 134 miles, though officially scheduled as 145 miles (nautical).

A race for each of the six classes was set for Saturday morning, with the final race for each in the afternoon. This arrangement was open to one serious objection—those launches which wished to run in the entire series of Thursday and Saturday did not care to risk a breakdown in the long race of Friday.

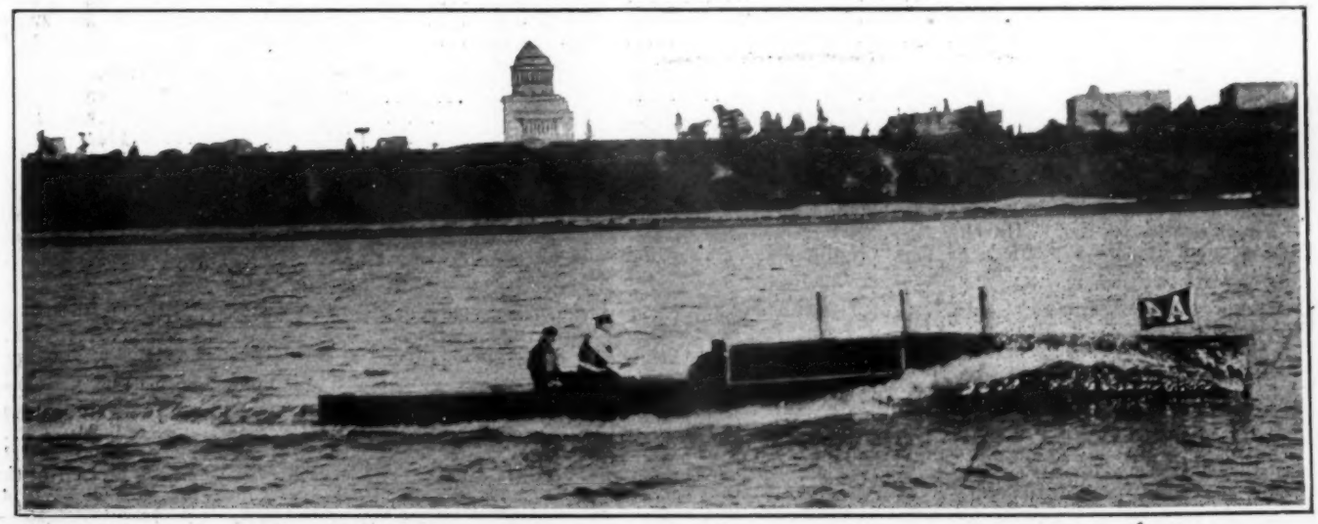
Thursday was really cold for the time of year, with a strong northwest wind down the river. The course was patrolled by several revenue service and police boats, various offending yachts and launches being summarily towed out of the way. The steam yacht *Colonia*, Commodore F. G. Bourne, was ordered away from the starting line, but refused to move—her owner, of course, not being on board—and it was reported that she was fined $100.

Class 1, Division II., was first started, *Cactus II.* giving 34 minutes handicap to *La Mascotte* and finishing but 5 minutes ahead; in Class 2 *Arcadia* won. In Class 1, Division III., *White Fox*, the winner, finished while the timers were at lunch, and was not recorded. Her owner protested very vigorously, and the race was finally given to her.

There was a long wait for the afternoon races. *Durno*, starting at 3:05, had over an hour's handicap over *Simplex III.*, steered by A. D. Proctor Smith, and won by about 15 minutes. *Vici* was disqualified for starting on the wrong gun. *Rosebud* made a poor start, lost her way in the tide, and was drawn under the pier, and then circled about the line for the rest of the afternoon, to the danger of all the racers.

In Class 2, Division I., *Skeeter* and *XPDNC* started close together, but *Veritas* had to give them about 15 minutes; she went over with a loud roar, Mr. Stein at the wheel, the full bows throwing clouds of water over and about her. The 12-meter class started with one gun, *Panhard II.* first, with Joseph Devantry at her tiller; *Den*, steered by C. F. Herreshoff, second; *Shooting Star II.*, steered by S. G. Averell, and *Dixie*, steered by E. R. Thomas, in oilskins and life preservers. *Dixie* took one of her characteristic rolls as she swung inshore round the corner of the pier; *Den* ran for a hundred yards and then stopped for the day. *Winton*, a good-looking boat of the Challenger-Dixie type, crossed the line ten minutes late and then gave up, and still later *Six Shooter* crossed the line. *Veritas* won in her class, and *Dixie* in hers, she and *Shooting Star* being the only ones to finish.

The race to Poughkeepsie and return on Friday was started at 9:36 o'clock for *Simplex III.*, steered by Mr. Smith; *Six Shooter* at 10:09:26, *Wizard* at 10:11:18; *Panhard* at 10:48:05, and *Veritas* at 12:02:40. *Panhard II.* was disqualified for starting outside the line, but did not answer the recall. When a couple of miles from the line the clutch shell on *Veritas* split, and she was towed back. *Simplex* turned the Poughkeepsie mark at 1:07:00, *Wizard* at 1:51:00, *Six Shooter* at 2:04:00, and *Panhard II.* at 3:45:00. *Simplex* was timed at 5:04:25, making her elapsed time 7:27:53.



L. R. SPEARE'S "WINTON," FITTED WITH 120-HORSEPOWER MOTOR, ON HER FIRST APPEARANCE IN NEW YORK WATERS.

while *Wizard's* time was 7:58:52. None of the others finished.

On Saturday morning *La Mascotte* and *Cactus II.* started, the former allowing by agreement but 7 minutes; they finished almost even, *Cactus* thus winning. *Arcadia* won from *Hazel, Glissando* failing to finish. *White Fox* won in Class 1 and *Durno* in the racing class. *Veritas* had been repaired and started in her class, but soon broke down. In this class *X P D N C* again defeated *Skeeter.*

The start of the open class, from the gun, was as exciting as anything of the kind yet seen in this country. *Panhard* led over the line, closely followed by *Shooting Star, Winton, Dixie* and *Den.* The latter was soon in trouble and stopped, while *Winton* later followed her example. *Dixie* won easily from *Shooting Star, Panhard* breaking down.

In the afternoon *Cactus II.* and *La Mascotte* started, by agreement on even terms; but the latter broke down and *Cactus* withdrew also. After being disabled in the morning race, *Chum* won in her class in the afternoon. *Arcadia* won from *Hazel. Simplex III.* had bent her shaft and was compelled to withdraw after starting. In view of the enormous quantity of driftwood in the river on all three days it is a wonder that more launches were not damaged. *Durno* won in this class. *Panhard II.* started in the final, but did not finish, and *Dixie* won easily. *Veritas* again stopped for a long time, but continued to the end. In this class *X P D N C* again defeated *Skeeter* by 7 minutes 49 seconds elapsed time.

As the result of the contests, *Dixie* wins the International Cup, *X P D N C* the National Cup, and *Durno* the Interstate Trophy.

## AMERICAN COMPETITION IS FEARED.

One of the most important daily papers in Paris, *Le Matin,* recently published the following on American competition:

"The American industry has made real progress, and, without being in a position to compete seriously with the French industry, has nevertheless made an effort which calls for our attention. For three years numerous new firms have arisen on the other side of the Atlantic, and the greater part of them appear to be in a prosperous condition.

"One characteristic of the American constructor is his remarkable ability to copy; the majority of American cars—except, perhaps, the steamers—are only servile copies of French products. The greatest defect of the American is his lack of method.

"We should do wrong to let ourselves be caught napping; as soon as the automobile has arrived at a definite form—and it appears already to have done so—the Yankee will be a terrible competitor. Unfettered by the handicap of an initiative, daring rather than far-seeing, he will bring to the fabrication by series extra-rapid and perfected mechanical processes in which he has a superiority which we have never denied. He will thus create "cheap"—this famous cheapness that we have been demanding for five years, and which ought not to be irreconcilable with good quality.

"American prices are already sensibly below ours for comparative powers—in the catalogue. On the other hand, one cannot deny that the American business man is well acquainted with the preferences of his customers. He takes especial care of the external appearance, and, especially in the fabrication by series, American body work is more carefully made than is French body work. We have had several proofs of this at the different salons, as well as at the Gordon Bennett race, when inspecting certain Pope-Toledos, Panhards—touring cars, of course."

**A manufacturer** of mufflers publishes a testimonial letter from a customer, stating that the new muffler had nearly doubled the power of his motor. A practical automobilist, on reading the statement, remarked that if the enthusiastic customer had used a muffler of a larger size he might have dispensed with the motor altogether.

**Italy has already** challenged the A. C. of France for the Gordon Bennett cup, in the hope that the race will take place next year.

## RESULTS OF THE AUTO BOAT CARNIVAL.

SUMMARY OF SPEED IN STATUTE MILES FOR EACH COMPLETED RACE IN THE NATIONAL MOTOR BOAT CARNIVAL, HELD SEPT. 14, 15 AND 16, ON THE HUDSON RIVER, NEW YORK.

| No. | Yacht. | Owner. | Club. | Engine. | I. P. | Sept. 14 1st Heat | Sept. 15 134 miles | Sept. 16 2d Heat | Sept. 16 Final |
|---|---|---|---|---|---|---|---|---|---|
| DIVISION I. | Class 1. | | | | | 30 miles (nautical). | | | |
| A-9 | Dixie | E. R. Thomas | Seawanhaka Cor. | Smith & Mabley | 150 | 22.40 | ..... | 26.57 | 24.52 |
| A-2 | Shooting Star | H. A. Lozier | Manhasset Bay | Lozier | 51 | 21.04 | ..... | 19.83 | 20.72 |
| A-1 | Panhard II. | A. Massenat | Columbia | Panhard | 60 | w | ..... | d-w | w |
| A-7 | Wizard | A. H. Dohn | Buffalo Launch | Buffalo | 30 | ..... | 19.37 | ..... | ..... |
| A-4 | Winton | L. R. Speare | Boston | Winton | 120 | w | ..... | w | ..... |
| A-5 | Six Shooter | F. L. Smith | Detroit Country | Oldsmobile | 60 | w | w | ..... | ..... |
| A-8 | Den | J. H. Hoadley | New York | American & British | 58 | w | ..... | w | ..... |
| | Class 2. | | | | | 30 miles (nautical). | | | |
| B-2 | XPDNC | Siegel & Gillig | Red Bank | Mercedes | 100 | 21.59 | ..... | 24.38 | 24.67 |
| B-3 | Skeeter | E. J. Schroeder | New York Ath. | Speedway | 60 | 20.12 | ..... | 22.65 | 22.52 |
| B-1 | Veritas | Alex. Stein | Indian Harbor | Craig | 200 | 24.82 | w | w | 17.20 |
| | Class 3. | | | | | 30 miles (nautical). | 19½ miles. | | |
| C-2 | Simplex | C. R. Mabley | Columbia | Smith & Mabley | 30 | 25.12 | 20.72 | 25.58 | w |
| C-3 | Vici | O. Lippincott | Oceanport | Lamb | 20 | d | ..... | 14.75 | 13.07 |
| C-6 | Rosebud | W. G. Titcomb | Rhode Island | Trebert | 30 | w | ..... | 14.44 | w |
| C- | Durno | J. H. Durand | Rochester | Rochester | 7 | 16.06 | ..... | 12.15 | 10.52 |
| DIVISION II. | Class 1. | | | | | 30 miles (nautical). | 19½ miles. | | |
| D-4 | Cactus II. | C. E. Proctor | Larchmont | Standard | 100 | 14.34 | ..... | 14.70 | w |
| D- | La Mascotte | F. C. Havens | New York | Craig | 75 | 13.59 | ..... | 14.14 | w |
| D-1 | Argonaut | Gottfried Piel | Columbia | Standard | 40 | w | ..... | ..... | ..... |
| | Class 2. | | | | | 30 miles (nautical). | | | |
| E-2 | Arcadia | John D. Roach | Lake Champlain | Lozier | 25 | 10.57 | ..... | 11.84 | 9.64 |
| E-1 | Hazel | T. S. Parvin | Corinthian, Phil. | Crown | 30 | 8.06 | ..... | ..... | ..... |
| E-3 | Glissando | F. L. Andrews | Fall River | Standard | 15 | 8.16 | ..... | w | w |
| DIVISION III. | Class 1. | | | | | 19½ miles (nautical). | | | |
| F-2 | White Fox | W. Ferguson, Jr. | Stamford | Sneckner | 15 | * | ..... | 14.49 | 12.41 |
| F- | Vitesse | T. W. Dunham | Metropolitan | | ... | 7.05 | ..... | 6.94 | ..... |
| F-3 | Traveller | C. F. Muller | Columbia | Buffalo | 15 | w | ..... | 10.90 | 9.15 |
| F-1 | August Mietz | E. W. Deming | Columbia | Mietz & Weiss | 22 | 8.47 | ..... | 9.15 | Not timed |
| F- | Chum | F. K. Lord | | Giant | ... | ..... | ..... | w | 10.46 |

Courses measured in nautical miles
Speeds figured in statute miles.

*White Fox won, but her time was not taken.
w—withdrew. d—disqualified.

# Maintenance of Country Roads.

THE rapid growth of touring by automobile brings into increasing prominence the important topic of good roads. Indeed there are now few autoists who do much driving who would not agree upon the necessity for good roads, not merely from their own point of view but because the automobile has given them opportunities for personal observation. In former days few thought of making an extended journey except by rail, and the opportunities for becoming familiar with existing road conditions that a view from a Pullman car affords are very limited. The bicycle gave many a knowledge of road conditions in the vicinity of cities, but usually did not familiarize the rider with the conditions of trunk lines of road travel.

Yet while there is great unanimity of opinion as to the necessity for good roads there is a surprising lack of exact information of a practical character about the possibilities of making good roads. The more knowledge that a man has about a subject the better qualified he is to discuss it, and it should be, and in most cases is, the privilege of the autoist to discuss good roads when and where such discussion may have creative value. For these reasons the publication of a bulletin by the State Highway Department of Ohio which deals with the "Maintenance of Country Roads" will be welcomed by autoists both individually and collectively in the influential membership of the automobile club.

### What Is a Good Road?

A "good road" does not imply any particular form of construction. It is not possible to macadamize all the highways of the rural districts of the United States for instance, especially in those sections in which suitable road making materials do not exist. Common earth is the most plentiful material for country road making, and in the Middle States especially the country roads and dirt roads are synonymous.

The State of Ohio has seriously taken up the question of roads, and the bulletin referred to is issued from the office of Sam Huston, the commissioner. It is not an essay on the political and financial difficulties of road construction and upkeep, but a practical road making talk that we are glad to be able to republish for its immediate interest, and also for purposes of future reference. With the omission of some paragraphs which have no special interest for autoists, the paper follows:

### Earth Roads.

There are certain principles that apply to the maintenance of all roads that can well be discussed in the consideration of earth roads. One fundamental principle that is of special importance in the repair of any road is that whatever is used in the construction of the surface is the only material that should be used in its repair. The experiment is often made of repairing a clay road by filling the mud holes with broken stone. The only result ensuing is that instead of having one mud hole two are produced.

### Road with Clay Surface.

A road with a surface of clay should only be repaired by using clay; a gravel road with gravel, a surface of limestone with limestone, trap with trap. We have never seen a road repaired in any other manner than that suggested above that was anything else than an illustration of failure due to improper treatment. It is true that a clay road is often improved by the use of sand, and a sand road by the use of clay; but these cases come under the head of road construction rather than road repair. If it is insisted that they belong to the question of repair rather than construction, then the answer must be that the exception proves the rule. All practical road work demonstrates the invariable rule upon which we are insisting, and if this bulletin but emphasizes the absoluteness of the principle, like repair for like surface, and assists in leading to its adoption by those having charge of road repair in the State of Ohio, this bulletin shall have accomplished an important result.

An almost universal condition prevailing on the roadways of Ohio, as well as other States, is a border of sod and weeds along each side of the traveled way and between it and the ditches. The horse manure is carried by rains toward the sides of a properly crowned road, and supplies the fertilization for the surface that produces a rank growth of grasses and other vegetation on the strip between the traveled track, where grass cannot grow, and the ditches. This strip or border of turf acts as a sieve on the surface washings of the road, checking the flow and allowing the water to pass slowly through, but at the same time collecting among the blades and stalks the solid material of the wash. This process slowly but certainly builds up a berme higher than the traveled surface of the roadway. This berme prevents the prompt passage of rainfall latterly from the surface and forces its flow along the road on grades, washing the material away and destroying the bond of the surface. The result on level roads is the retention of the moisture on the surface until removed by the slow process of evaporation, resulting in a wet, soft surface that will not resist the action of wheels even under light loads. This condition is the most prevalent of the many causes that tend to keep all kinds of roads in bad condition and destroy their value for comfortable and economic travel.

The attempt is often made to remedy the above condition by cutting trenches through the berme so formed, to allow the flow of water from the road. This, in a measure, is a remedy for the faulty condition, but is only temporary and in the nature of a makeshift. Constant attention should be given to the cutting away of this line of sod and its removal from the space within the bounds of the ditches. Where there are fills, the removed sod may be judiciously used on their face to increase their width and add to the permanency of their slope, but there is no proper place for depositing the sod inside of the ditch limit.

### Machine Working of Roads.

In many places where the modern road machine is used in working the roads and where the necessity of removal of the border of sods is recognized, the machine is used for cutting away the sod border, which is very proper, as it does the work very effectively, especially when the sod is moist. The mistake, however, is most frequently made of carrying the sod to the center and allowing it to remain on the traveled way in order to provide better crown and remedy the ditch shape of so many clay roads. The surface of any road is an improper place for the deposit of any waste product, especially vegetable matter, and violates the rule to use only the same kind of material, on the surface of the road, of which the surface was originally constructed.

The same result occurs where the silt, sod, trash and refuse that inevitably accumulate in road ditches are deposited on the surface of the traveled road to improve its crown and condition. There is often a deceptive but temporary effect produced upon the surface of a clay road by deposits of vegetable matter that has lead superficial observers to the belief that such a covering is a benefit. There is no doubt that the incorporation of a small amount of vegetable matter in the surface of a clay road gives, for a short time, a tenacious condition that is for the moment an improvement to its carrying power, and prevents moderately loaded wheels from cutting quite so deeply into the road. This improvement is but transient, and after the lapse of a short time is a great detriment to the road.

*(To be continued.)*

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**The announcement** has been made that, owing to lack of interest, the Pike's Peak mountain climb for automobiles has been abandoned for this year, and will be held next year instead. It is stated that though a number of entries were received, interest in the event was not as widespread as had been expected. It is therefore deemed better to put off the climb till another year rather than have it only a half-hearted affair. The expense of putting the road in usable condition, estimated at not less than $5,000, would have to be borne by the promoter, G. A. Wahlgreen, of Denver, Colo., if the climb was held this year. Extensive road improvements will be have been made by next summer, and these will naturally have a very beneficial effect on the attendance. A boulevard between Denver and Colorado Springs is one of the pieces of road work that will be welcomed by automobilists of that section.

# Three Men in an Automobile in France.

*An Interview with Winthrop E. Scarritt by Our Own Correspondent.*

PARIS, Sept. 8.—"How did you enjoy the tour?" exclaimed the representative of THE AUTOMOBILE, suddenly breaking in upon Winthrop E. Scarritt in the privacy of his room at the Elysée Palace Hotel, Paris.

The ex-president of the Automobile Club of America looked up from the road maps of France spread out before him, a smile upon his face that foretold his reply, and said enthusiastically: "Splendid—delightful—the most enjoyable tour that I have ever had in my life.

"We were three," said Mr. Scarritt, throwing his leg over his knee and settling himself back for a talk with the air of a man who loves his subject, "'three men in an automobile,' as I shall probably call it when I give my impressions in book form—Mr. J. H. Hill, Mr. C. H. Kavanaugh and myself, all enthusiastic automobilists, bent on seeing France and picking up as much information as possible.

"We had a fine Decauville touring car, belonging to Mr. Hill, and which we brought over with us from America, and in it we set out from Paris to Versailles, Dourdan, Troyes, Nancy, and Colmar; then into Switzerland at Bâle; from there to Lucerne, Interlaken via Lausanne, on to Geneva, and back again to France, passing through Aix-les-Bains, Bourg, Macon, Nevers, Tours, Blois, Orleans and Paris."

"French roads?"

"Well, comparing them with those of America, it is a case of human perfection and absolute chaos. They say it takes two hundred years to make a road, and in touring over them one can realize the tremendous labor that has been necessary to obtain these magnificent French national roads.

"In France, too, now that you have got them, you take care of them. The road is divided into sections, and each section is looked after by a man who has been on the same spot for ten, fifteen, twenty or perhaps thirty years. He is what we call 'Johnny-on-the-spot' in the States. In the adjoining section there is another man who has had charge of his patch for an equally long period. Those men could take you out in the dark and lead you to every loose stone or weak spot in the road.

"Then there is a rivalry between them," he continued. "Roadman No. 1 will never let it be said that his neighbor keeps his section in better condition than he. A splendid feature of the French roads is that they are very frequently lined with trees, which make the country much more interesting to run through, besides giving some shelter to the road.

"The Automobile Club of France has done excellent work by placing guide posts on all the roads. At every few hundred yards there is a post with *Ralentir* (go slowly), *Passage à niveau* (grade crossing), *Tournant brusque* (sharp turn), *Descente dangereuse* (dangerous descent), and the like. Every change in the road, every obstacle, every turning, every village and every grade is made known to you in advance, and by this means driving becomes a pleasure.

"This is a work that should be taken up by our club in America; we have the money, we have the influence, and we ought to do it."

"Speed laws?"

"I have not yet realized that you have any speed laws in France. We always traveled at a moderate speed, especially in the towns and more particularly in Switzerland, where the automobile is not looked upon with as much favor as in France; but everyone appears to run at as high a speed as he wishes.

"Why, here," said Mr. Scarritt, pointing outside, "in the Avenue des Champs Elysées, the most important avenue in Paris, and one of the finest thoroughfares in the world, I have frequently seen automobiles dash up at forty miles an hour.

"I am not a prophet, nor the son of a prophet, but I dare affirm this—that some day one of your great public men will be killed by some fast driver here in the city of Paris, and then a terrible reaction will set in."

Asked as to whether he was in favor of a fixed speed limit as existed in most of the States, or unlimited speed and entire responsibility for all accidents, as advocated by French automobilists, Mr. Scarritt said he was not prepared to express any opinion.

"In France," he remarked, "everybody is favorable to the automobile, and neither in France or Switzerland have I ever seen a horse shy, no matter at what speed the automobile rushed by. Frequently in France we took up a child traveling along the road and gave him a lift for a few miles, or it may have been a weary traveler afoot whom we took up beside us. The people, too, showed us every courtesy. An instance: The car was stopped by the roadside, and we were having luncheon in the open air. Two workingmen came along. In passing they raised their caps and said *Bon appétit, messieurs.* It was a little thing, but it showed the spirit that I should like to see everywhere between the general public and automobilists.

Not many American touring cars were in evidence along the roads, Mr. Scarritt said, although on one occasion, having broken a gear, the party was indebted to Mr. Charles F. Edgar, of Boston, who came along in a Pope-Toledo and towed them to the next village, where repairs were made. Commenting on the various types of cars, he said:

"I notice that steam automobiles are very rare indeed in France, and automobile trucks, so common in New York and other American towns, are but rarely met with in Paris. The French automobile constructor, too, has not appealed to the great middle class as a user of automobiles, as has been done in America. Thus, while we in the States have hundreds of small runabouts being used for every conceivable purpose about town, here in France it is the handsome luxurious touring car that is seen everywhere.

"There are no women automobilists in France. In hundreds of families in the States the runabout is a part of the household equipment. The automobile is driven by my wife, for instance, when going to church, for shopping, for taking the children to school, and no greater loss could be felt by the family than not to have the runabout. In France I have not met any lady driving an automobile."

The interview might have been prolonged indefinitely but Mr. Scarritt had only a few hours in Paris before embarking for the States, and as he stepped into a waiting car for a short trial run he exclaimed: "I shall come back again, I hope, for automobile touring is the only way to see Europe."

## SOLE MERCEDES AGENCY.

### American Syndicate Will Establish Large Headquarters in New York.

*Special Correspondence.*

PARIS, Aug. 26.—A contract was signed this morning between C. L. Charley, the Mercedes selling agent, of Paris, and an American syndicate consisting of Messrs. Wineburgh, Charles W. Morse and C. C. DeWitt, whereby the latter body secures the sole and exclusive selling rights for Mercedes automobiles in the United States and Canada.

"To put the matter in a nutshell," said Mr. Wineburgh to THE AUTOMOBILE representative, who waited on him at the Hôtel Vendôme, Paris, this afternoon, "we have secured from Mr. Charley the exclusive selling rights for Mercedes automobiles in the United States and Canada for as long as his contract exists with the Mercedes firm—and this is likely to be as long as the German establishment exists."

The syndicate possesses abundant capital, said Mr. Wineburgh, and it is their intention to secure large central premises in New York, probably in the neighborhood of Long Acre Square, where Mercedes machines will be stocked and all spare parts kept. In addition, branches will be formed in all the large cities of the States, where all spare parts will always be in stock.

"Any reduction in selling price?" queried the interviewer.

"Well," replied Mr. Wineburgh, "there may be a slight reduction in the selling price of the automobiles; but our plan is to make the Mercedes machine as easy of acquisition as any automobile on the American market. New machines will always be delivered promptly; a date of delivery will never be made unless we are absolutely sure of being able to fulfil it. Then there will be no 'fancy' bills for spare parts. Everything that may need to be changed on a Mercedes will be found in stock at the New York depot. All repairs will be made at actual cost price, only mechanics' time and material used being charged for. We are sending over a number of skilled workmen, thoroughly capable of fitting up anything on a Mercedes automobile, to take charge of repairs.

"We are convinced of the sterling qualities of the Mercedes machine, and believe it is only necessary to place it before the American public on these lines for a great increase in sales to take place."

Mr. Morse leaves Paris for New York to-morrow, and Mr. Wineburgh will follow him on Wednesday next. Immediately on their arrival the syndicate will get to work to secure premises in New York, branch agencies in other large cities, and developments may be expected without delay.

During the past year the firm of Allen, Halle & Co. has held the agency for German Mercedes cars in the United States. The actual handling of the machines and sales were effected by Smith & Mabley, of Seventh avenue and Thirty-eighth street, New York, under an arrangement with Allen, Halle & Co. It was said at the office of the latter, in reply to a question as to who would hold the agency next year, that nothing was known on the subject except by Mr. Allen, who is in France, and will while there confer with M. Charley, the Mercedes representative. The same statement was made at the offices of Smith & Mabley.

## Monster Touring Event.

*Special Correspondence.*

PARIS, Sept. 8.—The Automobile Club of France will probably organize next year one of the longest touring and reliability trials which has ever been held in Europe. The proposed tour will be from Paris to Nice, then into Italy, down the valley of the Pô as far as Venice, up again to Vienna and Berlin, and through Holland and Belgium to Paris.

## Italian Customs Duties.

An important change has been made in the Italian customs duties by a law passed July 5, 1905. Instead of being levied on the number of wheels and springs as formerly, a method of calculating which gave rise to a considerable amount of discussion and complication, the customs duty will be levied according to weight, as in France and Switzerland. The rate is:

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|---|---|
| Up to and including 500 kilos (1,100 pounds) | $40 |
| From 501 to 1,000 kilos (1,102 1-5 pounds to 2,200 pounds) | 80 |
| Above 1,001 kilos (2,202 1-5 pounds) | 120 |

## Foreign News Notes.

Louis Carle, manager of the London Mors Company, has been investigating the question of a summer automobile service in connection with the cross channel boats, and has come to the conclusion that much time could be saved by the institution of an auto line to Folkestone or Dover to catch the boats and on the French side from Boulogne or Calais to Paris. Without entering into competition with the price-cutting lines, for naturally the expense would be more than traveling in the ordinary manner, there are nevertheless many persons who would be glad of an opportunity to use a mortor-car service in summer instead of a hot, stuffy railway compartment.

Basutoland has been invaded by the automobile, a six-cylinder Napier being the first to enter the territory.

Negotiations are on between the Austrian and German automobile clubs to arrange a race between Berlin and Vienna for next season. The tour between the two capitals had to be replaced this year by the Vienna-Breslau tour.

A joint committee has been appointed by the Automobile Club of Great Britain and the Motor Union for the purpose of collecting evidence to lay before the recently appointed Royal Commission to investigate the rights and wrongs of the motorist preparatory to drawing up a new act for next year. A fund in self defense has been started and the cooperation of all British motorists is desired in order to be able to hold out during the coming fight for greater freedom.

The German Automobile Club is promoting a van and omnibus reliability trial at Berlin from October 9 to 14, which is being well patronized, as far as entries are concerned, by the industry.

The London-to-Brighton road, famed all the world over for its beauty and historical associations, has now fallen an agreeable victim to the motor 'bus, which is at present plying between the English capital and the watering-place. If this experimental innovation on the old coaching road be attended by success, a regular service will be instituted next season. At present the journey there takes five hours, and the run home the same time. The 'bus carries thirty-eight passengers, and in fine weather the trip is a delightful one.

The president of the Automobile Club of Italy, the Marquis Charles Ginois Lisci, Senator of the Kingdom of Italy, died at Munich at the end of August.

## Racing Motorcycles.

The Peugeot motorcycles built by the well-known French firm solely for speed are remarkable examples of what can be done when there is absolutely nothing to be considered except ability to travel fast. The first consideration is, of course, the motor. In the two machines which have carried Peugeot racing colors during the past season, these are of 12 horsepower and 14 horsepower respectively and have twin cylinders. The 12-horsepower machine has cylinders of 3.6 bore and 4.33 inches stroke, while the 14-horsepower machine has cylinders of 3.93 inches bore and 4.33 inches stroke. Drive is by flat belt. The most remarkable thing about the motors is their weight, which is 70 pounds for the 12-horsepower and 71 pounds for the 14-horsepower —respectively 5.8 and 5.9 pounds per horsepower. Everything is done that can be done to keep weight down. There are only two radiating flanges around the tops of the cylinders, the greater part of their length being plain. All bolts and connections are of the lightest description. Inlet valves are automatic. The escape of the exhaust is greatly facilitated by a number of holes drilled through the cylinder walls just above the lowest point of the piston's stroke. As the weight limit for racing motorcycles is 110 pounds, it will be seen that the margin left for the frame, wheels, tires and accessories is very meagre. The frames weigh 16 pounds; the front wheels 5 pounds and the rear wheels 8 pounds each, the weight of the wheels including the tires, which are single tubes, extremely thin and light, and bound to the wood rims with tape. These figures show that only 12 pounds and 11 pounds respectively are left for the batteries, tanks and saddles; but somehow the limit was not exceeded. No pedal gear is fitted, there being plain, light steel foot rests.

The rider starts his machine by running alongside and pushing it until the motor takes hold, when he vaults into the saddle. Owing to the extremely high gear, 1 1-2 to 1, and the lightness of the machine the rider has to be exceedingly prompt in reaching his perch, lest the machine get away from him and fall, with possible damage resulting. The riders wore leather skull-caps with pneumatic cushions inside—a precaution that seems most wise, considering the fragility of the powerful machines.

Ridden by Cissac, the 14-horsepower machine covered a kilometer, with flying start, in 26 seconds flat, equal to 85.98 miles an hour. The same machine covered a mile, with standing start, in 53 1-5 seconds. Rignold, on the 12-horsepower machine, covered the mile with flying start in 46 1-5 seconds, all these times having been made at the automobile race meet at Brighton, England, in July.

**Edison's invention,** which is to revolutionize automobiling, is to be given to the magazines in October. Year of its practical operation is not yet known.—Exchange.

# Orient 16-20 H.P. Air-Cooled Model de Luxe.

AUTOMOBILES with air-cooled motors have attained to a large measure of popularity within the last two years, constant use having shown that motors of this type, properly handled, are quite capable of doing the work for which they are designed. Absence of the weight and complication incident to the water-cooling system is in favor of the air-cooled machine, and although a certain amount of extra care must be given the engine because of its liability to overheat if improperly handled, the advantages more than counterbalance this.

A company that was early in the field with a four-cylinder air-cooled car is the Waltham Manufacturing Company, of Waltham, Mass., whose first car having a four-cylinder air-cooled motor (of 16-20 horsepower, with cylinders arranged longitudinally) was brought out late in 1903. The 1905 touring car, which is the subject of this description, is of the same general type, but has been changed and improved in many details. It is called the Orient Model de Luxe.

In general outline and arrangement of parts the Orient air-cooled car is similar to light touring cars having water-cooled motors. It is attractive in appearance, having a body of simple but graceful design, with side doors of good width, a wide and comfortable rear seat and divided front seats, and a bonnet of the Mercedes shape over the engine; the radiator is, of course, missing, the front of the bonnet being covered with wire netting, permitting free passage of air to the motor. The fenders are broad, and are joined by running boards that form steps leading to both front and rear seats. Transmission is by sliding gears and shaft to the rear axle. The car weighs 1,650 pounds, will carry five passengers owing to the width of the rear seat, and has a speed capacity of thirty miles an hour.

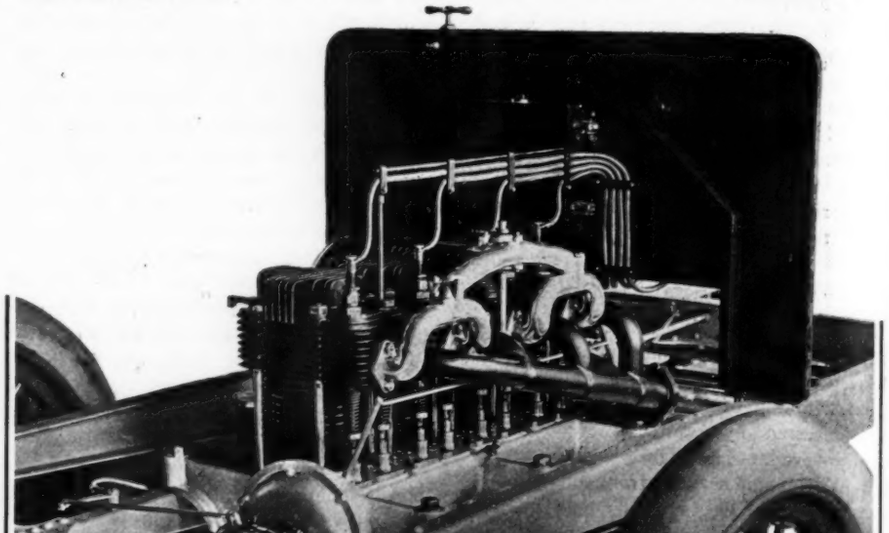
The way in which a motor of 20 horsepower is cooled without water is naturally of interest. Deep, thin, horizontal flanges are cast integral with each cylinder, extending well down the barrel and surrounding the valve chambers. On the cylinder heads the flanges are vertical, running fore and aft, and are of great depth. Owing to their longitudinal position, the air passes freely between them from end to end of the motor. Natural draught is not depended upon, however, to carry away the heat. A four-bladed fan, running in ball bearings in front of the engine, and driven by belt from the crankshaft of the motor, keeps a column of air in constant motion past the cylinders. The fan is of large diameter, and the blades, of course, are widest and move with the greatest velocity at their outer ends, so that the greater part of the volume of air set in motion by the blades is so far from the center that it passes the first cylinder and impinges on the flanges of the others. The front cylinder is cooled mainly by the comparatively small but sufficient volume of air set in motion by the center of the fan. It is stated by the manufacturers that the cooling is very even, and that the rear cylinder never becomes appreciably hotter than the others.

The motor has an aluminum crankcase, integral with which are cast six arms, three on each side, by means of which the motor is bolted to the longitudinal sub-frames provided for its support. The sub-frames are dropped so that the top of the crankcase is about on a level with the bottom line of the main frame of the car, thus giving a low-hung motor and assisting in lowering the general center of gravity. The crankshaft is 1 1-4 inches in diameter, and runs in five bronze bearings. Each cylinder is bolted to the crankcase by four long bolts passing up through holes in the cooling flanges to the top of the cylinder, on which heavy lugs are cast to take the holding-down nuts. This is an arrangement that has long been used in small air-cooled motors with excellent results. The cylinders have a bore of 4 inches and a stroke of 4 1-4 inches. The normal speed of the engine is about 1,000 revolutions per minute.

All valves are mechanically lifted, and all are alike and interchangeable. Both inlet and exhaust valves are on the same side of the cylinders, and all the cams are carried by a single camshaft housed in the crankcase along the left side of the motor. The contour of the cams is designed to seat the valves with as little noise as possible. In the tops of the valve chambers are the openings, closed by screw plugs, through which the valves may be removed. The spark plugs are inserted in the covers of the inlet valve chambers. A horizontal rod reaching from the dashboard to an upright rod rising from the forward cylinder supports the wires leading to the spark plugs. This arrangement prevents the weight of the wires dragging on the spark plugs and terminals, and is a neat and substantial means of leading the wires to their places.

Ignition is by jump spark, the necessary current being supplied by two batteries of four dry cells each. A quadruple vibrator coil is mounted on the dashboard. The distributor, inclosed in an aluminum case, is carried on the front end of the camshaft, by which it is rotated.

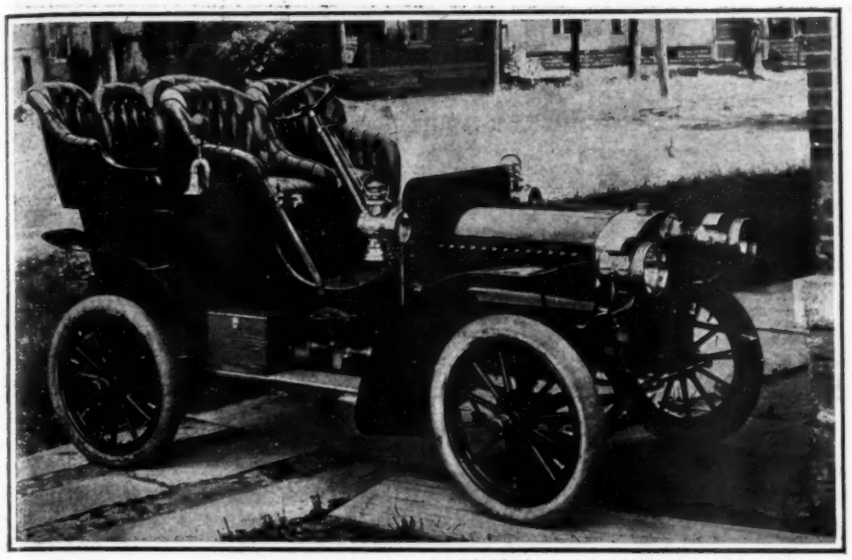
Gas is formed in a float-feed carbureter, and is carried to the cylinders in pipes so laid out that the distance from the carbureter is the same to all cylinders.



ORIENT FOUR-CYLINDER ENGINE IN POSITION, SHOWING INLET AND EXHAUST PIPES, SPARK PLUGS, AND IGNITION DISTRIBUTER.

Lubrication of the motor is by splash, the crankcase being divided by partitions so that there is an oil pit for each cylinder. A pump on the dashboard, operated by hand, serves to introduce oil into the crankcase and requires attention but once in twenty-five miles, it is said. The change-speed gearing is lubricated with heavy oil, which is placed in the transmission gear case.

The pressed steel side members of the car frame are four inches deep at the center and taper toward the ends, where the steel spring-hangers are attached by hot riveting. Cross frames, also of pressed steel, are located one at the extreme front, one at the rear of the motor, one at the rear of the transmission gearcase, and one at the extreme rear of the main frame. These are hot riveted in place, having integrally formed corner braces and palms through which the rivets are passed. Longi-



IROQUOIS 15-20 HORSEPOWER LIGHT TOURING CAR WITH FOUR-CYLINDER ENGINE.

tudinal sub-frames which carry the motor are extended backward to form a support for the transmission gearcase also. Sliding gears give three forward speeds and reverse with direct drive on high speed. The gear shafts run in ball bearings. The clutch is of leather-faced cone type. The propeller shaft from transmission to live axle has two universal joints. A heavy distance rod extending from the bevel-gear differential gearcase to the cross frame at the rear end of the gearbox relieves the springs of driving stresses.

The rear axle has tubular sleeves 2 1-2 inches in diameter, within which revolve the live shafts of 1 1-4 inch steel, the inner ends turning in ball bearings and the outer ends in long roller bearings. The front axle is tubular, 2 inches in diameter.

Semi-elliptic springs 45 inches long carry the rear of the frame and 40-inch springs the weight of the engine in front. Wheels, of wood, are 32 inches in diameter, fitted with 3 1-2 inch tires. On the rear wheels are drums for the emergency brakes, operated by side lever; the service brake is a pedal-operated band on the transmission. Ten gallons of gasoline can be carried in a tank under the front seat.

The body of the car is finished in Quaker green, with black trimmings and fine red striping; the running gear is carmine, with black striping. Dark green leather is used for upholstering the seats, and the backs and arms of the seats are finished with brass beading. Each car when sold is equipped with two brass oil lamps on the dash, one brass tail lamp, a horn, tire-repair outfit and tools.

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**In 1925**—Rural constable, halting automobilist—You are going pretty fast, sir.

Automobilist—Only thirty-five miles an hour.

Constable—Beg pardon, sir, I wanted to warn you of a bad turn ahead.—*Exchange.*

## Iroquois Light Car.

A good looking car of the light touring class is the 15-20- horsepower machine turned out by the Iroquois Motor Car Co., of Seneca Falls, N. Y., and illustrated herewith. The car is equipped with a light, high-speed, four-cylinder vertical motor, placed in the front under the bonnet, water-cooled; the transmission, of the sliding gear type, gives three forward speeds and a reverse, and is, the manufacturers state, made of nickel steel. The transmission shafts run in ball bearings. The complete transmission is 15 inches long and 10 inches wide. Cylinders have a bore of 3 1-2 inches and a stroke of 3 3-4 inches. The normal speed of the motor is given as 1,800 revolutions per minute when it develops 15 horsepower. On speeding up to 2,000 revolutions, 20 horsepower is developed; and the engine is said to be capable of a maximum of 2,500 revolutions. Cylinders are separately cast and have integral heads, water jackets and valve chambers. Both inlet and exhaust pipes are on the right-hand side and are attached to the bottoms of the valve chambers, so that the upper part of the engine is unusually free and clear the pipes are especially designed so as to be easily removable. The water circulation is maintained by a gear pump, driven by gears from the front end of the crankshaft. The timer is mounted on the top of a vertical spindle at the rear end of the motor.

The manufacturers state that special pains have been taken to produce a fast and quiet running car and a comfortable one to ride in. Wheels are 30 inches in diameter, with 3 1-2-inch tires. The car weighs 1,800 pounds.

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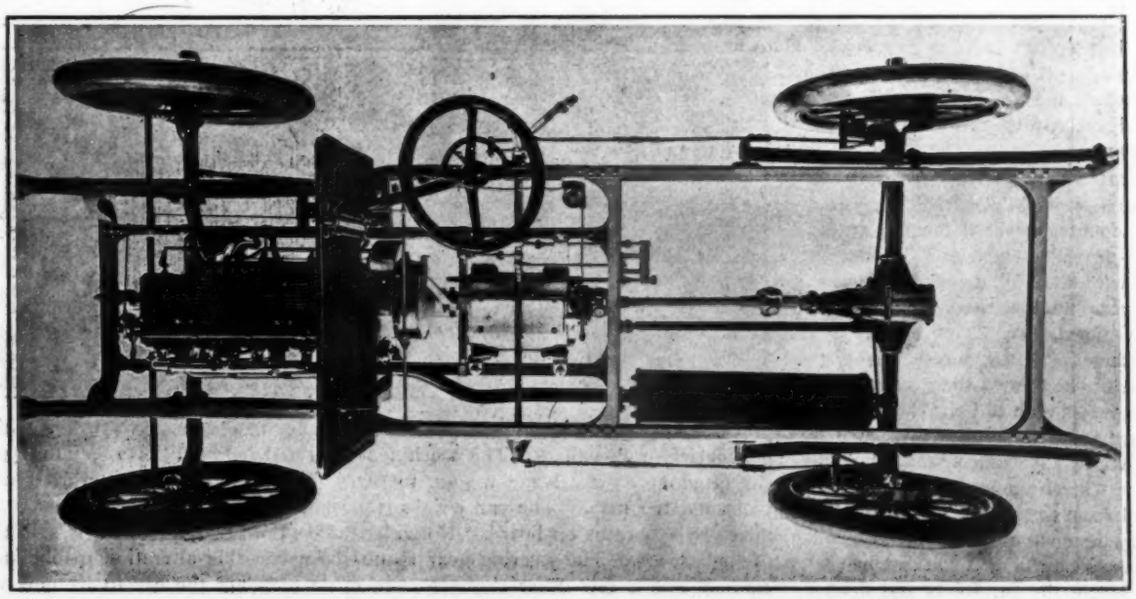
**It's a brave-hearted woman** who consents to accompany her husband the first time he takes his new automobile out without a trainer.—Duluth (Minn.) *Tribune.*

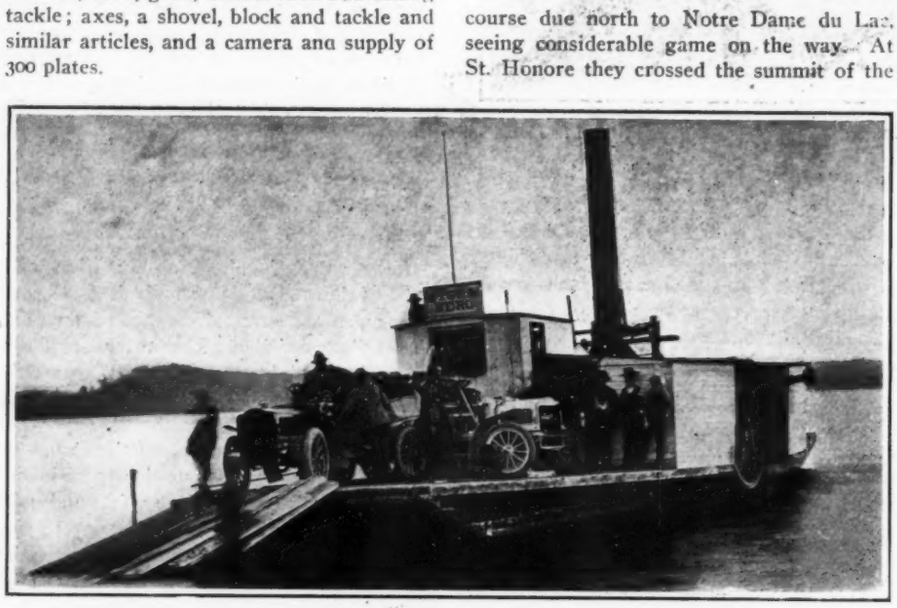


CHASSIS OF ORIENT LIGHT CAR, SHOWING SUB-FRAME CARRYING ENGINE AND TRANSMISSION AND SHAFT DRIVE

## Tour in New Brunswick.

One of the most interesting and unusual tours of the season was a trip of 546 miles from Portland, Me., through the White Mountains, across the St. Johns River at Fort Kent into New Brunswick, along the river to Edmundston and north along the lower St. Lawrence River to Bic, where the tour ended last week. The party included Ezra H. Fitch, Augustus Post, A. T. Edmundson, R. H. Johnston and N. Lazarnick. Everything necessary for a trip of two weeks through the wilds of New Brunswick was carried in the two White cars, including sleeping bags, silk tents, a complete camping outfit embracing cooking utensils, food, guns, ammunition and fishing tackle; axes, a shovel, block and tackle and similar articles, and a camera and supply of 300 plates.

FITCH TOURING PARTY ENJOYING CAMP LIFE IN THE NORTH WOODS.



ANTIQUATED FERRY CARRYING THE FITCH PARTY ACROSS A DEEP RIVER.

The party left Portland on August 25 and drove to Lake Mattawamkeag, which forms part of the boundary between Maine and New Brunswick; thence they went due north along the boundary to Patten. Near this place they had an exciting run through a forest fire and sat up most of the night in Patten watching the fire in the surrounding forest, ready at any time to jump into the cars and leave.

Above Patten they left the road followed by all former automobile tourists and struck out into a country never before penetrated by the self-propelled vehicle. The country was very wild and hilly and the few inhabitants were much excited when the cars made their appearance.

The first camp in the forest was made near Masardis, and from there the explorers drove to Ashland and through a dense forest where for fifteen miles there was no sign of human habitation. At Eagle Lake a settlement of French descendants was entered and from then to the end of the tour the country seemed quite French, few of the inhabitants speaking much English.

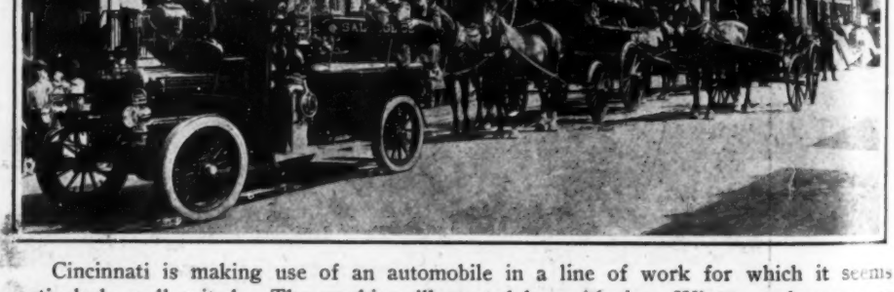
After crossing the St. Johns and driving on to Edmundston, the party struck a course due north to Notre Dame du Lac, seeing considerable game on the way. At St. Honore they crossed the summit of the watershed between the St. Johns and the St. Lawrence. Reaching Riviere du Loup, they followed the thinly settled bank of the lower St. Lawrence to Bic, Canada. Here they stayed several days to hunt and succeeded in shooting a caribou, which was loaded into one of the cars and taken to Bic. The return journey home was made by train.

## CHICAGO SHOW DATES.

### February 3-10 Set for "the" National Show in the Coliseum.

February 3 to 10 inclusive have been announced as the dates for the Chicago automobile show of 1906. It will be held as usual in the Coliseum building, and will be open to any manufacturer of or dealer in automobiles and automobile parts and accessories who has not exhibited and does not exhibit at any show that is not sanctioned by the National Association of Automobile Manufacturers, Incorporated.

Manager S. A. Miles announces that "the Chicago show will be the only one held under the auspices of the National Association of Automobile Manufacturers, Incorporated, and will be *the* national show of 1906." Decorations, signs, floor covering and furniture will be uniform in style and harmonious, being supplied by the management.



Cincinnati is making use of an automobile in a line of work for which it seems particularly well suited. The machine, illustrated herewith, is a Winton 50-horsepower car fitted up as a salvage wagon, to carry fire extinguishers, waterproof covers, ropes, tools and ten men. The car weighs 3,500 pounds empty and 5,750 pounds with all the men and apparatus on board. Notwithstanding the great weight, it is said to be capable of high speed. The steering gear required considerable alteration to obtain the vertical column, and a few other changes were made to adapt the car to its new work, but in the main mechanical features no alterations have been made.

# Letter Box

## Road Directions at New Haven, Conn.

*Editor of* THE AUTOMOBILE:

[265.]—After experience with a considerable number of American cities, I am inclined to think that New Haven, Conn., is more puzzling to the unacquainted tourist than about any other that could be named. Its very situation has something to do with this. The city is built on an arm of Long Island Sound, nearby and along which there is a string of small towns and various summer resorts. It is the principal dividing line between the routes to the north (reaching up through the Connecticut River Valley) and those to the east (extending farther along the Sound).

It is also an important initial point for travel to and from the Naugatuck Valley, with its many small and close cities and towns. Approaching from the west you must cross the West River; if from the east, you must cross the Quinnipiac River, both small streams reaching the Sound within two miles of each other. Very often one or more of the bridges are out of commission, as one is at this writing. These and various other conditions combine to confuse the tourist who has only general directions in going to or through the city of Yale University.

I shall never forget my first entrance into New Haven from New York, possibly four years ago, with practically no riding directions beyond the little town of Milford, ten miles this side. Then there was nothing else to do except ask a policeman at Savin Rock, another one at West Haven, and two or three more in New Haven. My next experience was as a passenger in the endurance run from New York to Boston and return, in October, 1903. At that time it was a procession in which were a number of motorists who personally knew the road, and there was little or no attention necessary for the route.

Two or three times since I have had occasion to go through it, but New Haven has remained the same general mystery as before. This mystery was not cleared by correspondence with the proprietors of two garages located in different parts of the city. Their directions, as given by this correspondence, were so radically different that it was clear they were influenced by their own locations, and not by the best requirements of through travel. Passing through New Haven more recently, I took a couple of hours to run over the various routes in and out of the city, and notes of same, with a sketch, are given herewith. They are, of course, notes of a comparative stranger, and will doubtless receive the attention through your paper of others, perhaps residents of the city, in which case further amendments or suggestions would be gladly received, and perhaps become of useful interest to many tourists passing through New Haven.

All routes from Bridgeport, Stamford and New York run down to the shore at Savin Rock, a resort just west of New Haven. The most conspicuous landmark here is "Cox's Surf House," but from this point the two routes which are commonly called the "old route" and the "new route" widely differ. The old route, which will be found in the "Official Automobile Blue Book," turns left from Cox's and almost immediately right, bending back into the Shore Road, which is followed to the end of Second avenue. At Monahan street this route turns right one block to First avenue and continues straight ahead to Elm street (trolley), West Haven.

Here the motorist would turn right to cross Kimberly avenue bridge; thence

MAP OF ROUTES THROUGH NEW HAVEN.

ahead, with left turn into Howard avenue, crossing meanwhile the viaduct over railroad tracks. Nearing the center of the city, this route turns right to Congress avenue (hospital on northeast corner), and after a short distance on that thoroughfare it bears diagonally left into Church street, following same to Chapel street, to the corner of the Yale Green. This route is shown by broken lines in the accompanying diagram, the reason for which will shortly appear.

What is called the "new route" bends left from Cox's Surf House into Savin avenue to West Haven Green. Then it turns right one block (on Main street), then left with car tracks (Campbell avenue), on over West Haven bridge to the point where three roads fork. Here the extreme left fork (Davenport avenue) is taken, becoming the principal entry into the city. At the bottom of a short down grade, very near the center of the city, Davenport avenue comes to an end, but a short right turn into Oak street, and a minute's ride along that thoroughfare will bring one to a brick pavement.

This brick pavement marks Temple street, and if the tourist will turn left on Temple street and go straight ahead, it will bring him across Chapel street, at the boundary of the Yale Common. Here he can turn either to the right or left along Chapel street, or continue Temple street, directly across the Common. This "new route" the writer is glad to credit to Mr. C. O. Reichert, of the Reichert Automobile Co., at New Haven. It formed the basis for the running directions into New Haven in the road book of the Hartford Rubber Works Co., and was adapted into the Glidden tour route this past summer.

The difference between these two routes under ordinary circumstances is very slight, but at the present time the "old route" is out of commission altogether on account of an extensive rebuilding of the old bridge from Elm street, West Haven, to Kimberly avenue, New Haven. Consequently it is impossible to pass that way, while the other route, via Davenport avenue, will probably continue to be the usual route, even after the new bridge is ready for use.

Of course there are various ways to go through New Haven, according to the destination in view. Just before Davenport avenue comes to an end, and Oak street is taken, York street will be seen to branch off to the left, at a little triangle in front of a Catholic church. This is a direct, short line to the western edge of Yale Common, and might be used to advantage by tourists bound through to points north-by-west, saving the longer route through Oak and Temple streets, which, by the way, will be for some time through the old portion of the city.

Orchard street, as shown on the map, is a

direct macadam route from Davenport avenue across to Derby avenue, and might be used as a short cut to the Derby-Shelton-Danbury line. In connection with George street, it would also make an optional entrance into New Haven, particularly to destinations west of Temple street. Orchard street is marked only by a metal sign; using this route you must keep a lookout for it when about a mile from the center of the city.

There are three possible routes from the center of New Haven to North Haven, Meriden, Hartford and north. Coming into New Haven from the south, using Davenport avenue, Oak street and Temple street, to Yale Common, by far the best way is to continue across to the Common into Whitney avenue, which keep out about a mile to intersection with Lawrence street, which take to right turn and follow to its intersection with State street, near the Cedar Hill station of the N. Y., N. H. & H. R. R.

Starting from the principal four corners of the city—Church and Chapel streets—a slightly shorter way is to keep down Chapel street two blocks to Orange street, and turn left up Orange. This gives a ride of a mile, or a trifle less, along the splendid asphalt of Orange street to Lawrence street, where turn right and follow as before to State street. The absolutely direct route from the center of New Haven, and the shortest way from the shore route east of New Haven, via East Haven, is from Chapel street to State street and out State street all the way. This is poorer going than either Orange or Whitney avenue; consequently it is put down in dotted form in the diagram.

Leaving New Haven for points east, the tourist is apt to make a mistake as he is coming into the city from the south. Chapel street, if followed out more than a quarter mile from the corner of Church street will give a wretched piece of pavement, and even beyond this, what seems to be the natural route east from New Haven is not so. The proper route from the center of the city is Crown street to the intersection with State street. Here Crown street comes to an end, but if the tourist will turn a quarter block north (a mere jog on State street) he can go directly into Wooster street. This street, which is brick paved, leads directly to East street, where turn right—wretched pavement again—to intersection with Bridge street—more wretched pavements—and left turn on Bridge street, to cross the Tomlinson bridge. This is the route to East Haven, New London, Providence, etc., and the trolleys show the way through East Haven to Branford.

The principal route to Derby, Shelton, Bethel, Danbury and points beyond, is out Chapel street, about one mile to left bend into Derby avenue. Thence out past Yale field, all of which is simple enough. Equally plain is the route via Temple street and Whitney avenue toward Mt. Carmel, Cheshire and Waterbury, both of them given on the map. Elm street and Whalley avenue are used to begin the run to Bethany and Naugatuck; this is also an optional way to Waterbury.

There are two reasons why Temple street across the Common is preferred to any other thoroughfare: (1) it is well paved throughout and avoids the Church street-Chapel street four corners, where all the trolley routes center. This is at times a dangerous as well as an annoying place, especially in the "rush hours," when the tracks leading in all directions are crowded with cars and people are hustling aboard them. (2) Temple street is fairly clear of traffic, and from it the best passing view can be had of the Yale buildings.

A short cut into Wooster street from the Church street-Chapel street four corners is east on Chapel street to State street, turning down State street to left bend into Wooster street, then as before. This might be useful in running from points north of New Haven to Shore line points via Tomlinson bridge and East Haven.

To one going through New Haven for the first time, I dare say that the directions here given will save a number of inquiries. Criticism of them is frankly invited, and any better means to accomplish the same ends will be cheerfully placed on record.

ROBERT BRUCE.

*Clinton, Oneida Co., N. Y.*

## Overheating of Air-Cooled Motor.

*Editor* THE AUTOMOBILE:

[266.]—I read with a good deal of interest Mr. Haines' reply to query of G. W. T. [No. 262] re overheating due to skipping spark. I think that Mr. Haines' reply is all right, but think that my experience with a motorcycle (single cylinder) may perhaps throw additional light on the subject. I find that after a run of about five miles or so at top speed, throttle wide open and spark well advanced, that if I encounter only a slight grade, provided it is of any length, that the motor will first slow down and the explosions weaken, and then it will skip. However, if on surmounting the grade I "nurse" my motor by running under closed throttle and coasting hills with the power off, the signs of overheating disappear and the machine is soon in a condition for a run at top speed again. This would seem to prove that overheating causes skipping, for the overheating manifests itself before the skipping, and as soon as the overheating passes off the ignition becomes regular without any adjustment or cleaning of the ignition apparatus.

As to whether a skipping spark may cause overheating in a single cylinder motor, I do not remember anything in my experience that would lead me to believe it would. However, it may be the direct cause of overheating, since one would be likely to run with a more open throttle to compensate for the loss of power on the missed explosions, and on a somewhat retarded spark on account of the slower speed, and these conditions might tend to heat the motor to a greater extent than the missed explosions would tend to cool it.

HAROLD H. BROWN.

*Boston, Mass.*

## Inhabitants in No Danger.

*Editor* THE AUTOMOBILE:

[267.]—I enclose a speed notice published in the North Adams (Mass.) *Evening Transcript* that may interest you. The town, so called, has a population of 390, an area of about twenty-eight square miles, no post-office and there is no village of Florida. Years ago there was a post-office, which was at the house of one farmer or another, depending upon the administration. I am not positive, but I do not think there is another house within sight of two of the houses, where I remember the post-office to have been.

Owing to the crowded condition of the "streets," the selectmen have felt it their duty to establish a speed limit of four miles an hour for the entire length of a road more than seven miles long. The road is a bad one, several miles of it being mountain road, which few automobile drivers care to travel over, and it does seem as though the inhabitants (there is but one to every fifty-seven acres), could keep out of danger if automobiles were allowed to go as fast as ten miles an hour.

F. B. N.

*North Adams, Mass.*

The notice reads as follows:

NOTICE.

We the undersigned hereby give notice that automobiles and motorcycles shall be run at a speed not to exceed four miles an hour on the road in the town of Florida, beginning at the North Adams town line, from thence to the Zoar Bridge, so-called.

Florida, August, 1905.

G. N. THATCHER,
C. H. READ,
L. C. RUBERG,
Selectmen of Florida.

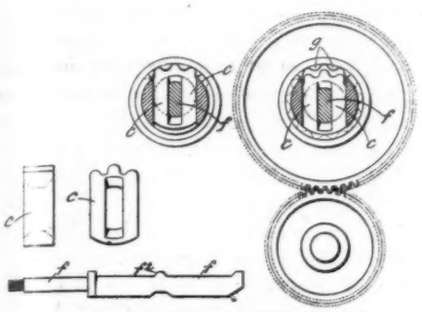
**Danville has one automobile** that moves household goods. And she has only one. This machine has been making regular trips between 433 Gilbert street and a house on Clay street. Each trip it carries a burden of carpets, sewing machines, canned fruits, dishes, mirrors and what-not. It carries its load readily and quickly and its cushion-like springs insure fragile articles against breakage. The machine belongs to Joe McClain, 433 Gilbert street. Its freight-carrying compartment is the invention of Mr. McClain himself and was made by him. It consists of a common box made to fit the rear portion of the machine, and is painted red. Mr. McClain is moving into his new house, and during spare moments takes a load of small articles to the new building. Using the machine thus, he is not obliged to pack his furniture, as there is positively no danger of damage.—Danville (Ill.) *Democrat.*

# Patents

## Speed-Changing Gear.

Nos. 798,218 and 798,219.—W. H. Scotton, of Ipswich, Eng.

All the gears are in constant mesh, but those on one shaft are loose, and are locked



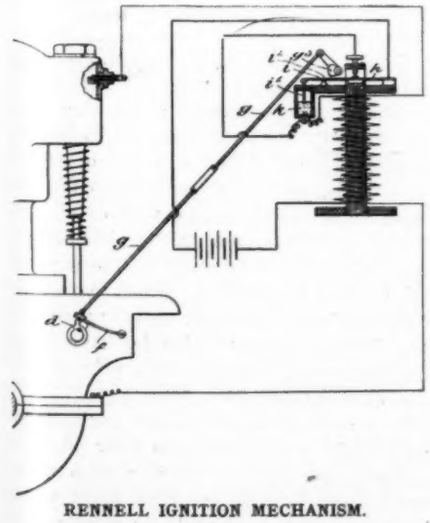
SCOTTON SPEED-CHANGING GEAR.

one at a time to the shaft by positive clutches operated by a central sliding rod, which is shown at *f*. It has a toe $f^2$, which acts on the locking members *c*, which are contained in slots in the shaft, one in the plane of each gear, and are moved by $f^2$ so that their blunt teeth engage internal teeth *g* in the gears. The gear hubs are about three times as long as the width of the teeth, and are bushed each side of the latter.

## Ignition Device.

No. 798,702.—T. B. Rennell, of Denver, Colo.

This device has two essential features. The timing cam, instead of making and breaking an electric contact, actuates mechanism which alternately holds the trembler away from its contact screw and releases it. Again, the trembler itself actuates another contact device, consisting of a wire dipping into a mercury cup, which is



RENNELL IGNITION MECHANISM.

in parallel with the trembler contact and receives a portion of the current. This mercury contact is broken by the action of the trembler, theoretically at the same instant as the platinum contact. In the drawing *k* is the mercury cup, and $i^3$ a wire dipping into the mercury and attached to a spring *i* integral or connected with the trembler blade. A fulcrum $i^2$ causes $i^1$ to move in the sense opposite to *h*. The timing device consists of a spiral cam *d* acting through spring *f*, rod *g*, etc., on the rocking cam $g^3$, which holds or releases the trembler. By shifting *d* on its shaft the time of the spark is varied.

## Speed-Changing Gear.

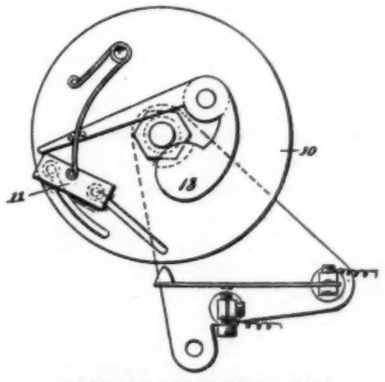
No. 798,048.—A. E. Schaaf and J. A. Hertzog, of Toledo, O.

A sliding gear transmission giving direct drive on the high speed and arranged to disconnect the jack-shaft, rendering it idle when driving direct.

## Automatic Spark Timer.

No. 798,992.—W. J. Cochran, of Cleveland, O.

The frame *1* may be secured to the engine instead of being adjustable by hand as



COCHRAN AUTOMATIC TIMER.

usual. The cam member *11*, instead of being rigidly secured to the rotating member *10*, is guided by the slots shown and is shifted automatically by the centrifugal weight *18* to advance or retard the time of contact. The rotation of *10* is counterclockwise.

## Radiator Arrangement.

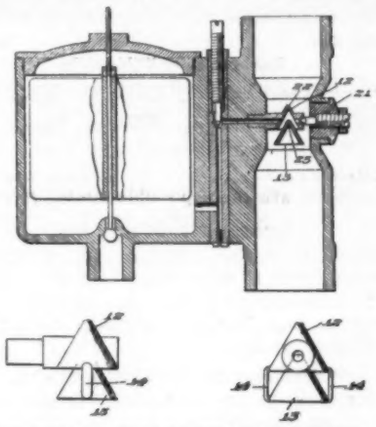
No. 798,921.—L. Renault, of Billancourt, France.

The present Renault arrangement of a rectangular radiator, built up of vertical finned tubes connected by top and bottom headers and located between the dash and the bonnet. The bonnet is narrower than the radiator and is air-tight, with a pan beneath the engine, and the flywheel has fan blades attached. The air is drawn into the radiator at each side of the bonnet, and is sucked by the fan forward past the middle radiator tubes into the bonnet, then down and through the flywheel.

## Carbureter.

No. 797,972.—J. B. Moreland, of Belvidere, Ill.

A float-feed carbureter in which the spray nozzle and related parts take the form illustrated. The two cones *12*, *13* serve partly to restrict the air passage and partly to direct a small stream of air through their



MORELAND FLOAT-FEED CARBURETER

apexes—see the holes *22*, *23*—where it will break up the gasoline jet. The lower cone is supported from the upper by the arms *14*, and the cones are removable together by taking out plug *21*.

## Automatic Spark Timer.

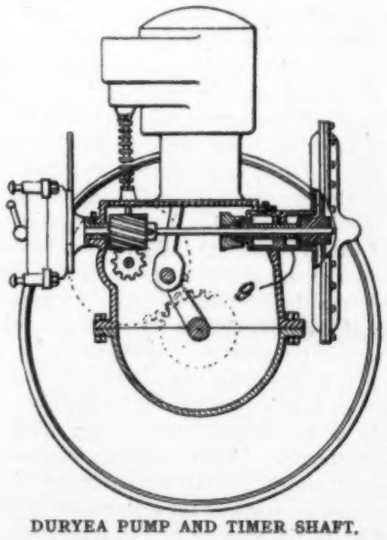
No. 796,729.—T. B. Jeffery, of Kenosha, Wis.

A timer similar in principle to No. 796,730 (August 24 issue), but much less simple.

## Engine Detail.

No. 798,995.—J. F. Duryea, of Springfield, Mass.

An arrangement of the timer and the circulating pump on a short cross shaft, driven by spiral gears from the camshaft, this construction being for certain cases more convenient than to place these auxiliaries on the cam shaft. In the form shown and claimed, the hub *9* of the pump



DURYEA PUMP AND TIMER SHAFT.

casing is made larger than the spiral gear, and by withdrawing the pump casing the whole shaft and spiral gear will come out through the aperture in the crankcase wall.

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***Weight and Piston Displacement***

A committee, composed of Messrs. S. D. WALDON of the Packard, CHARLES CLIFTON of the Pierce, and S. T. DAVIS, Jr., of the Locomobile concerns, has been appointed by the National Association of Automobile Manufacturers to consider the suggestions, recently made by Mr. WALDON, that a road race be instituted by the association in which "one design" cars only, whether of domestic or foreign origin, be permitted to enter. The suggestion that the national organization take hold of this plan is an interesting one, and will doubtless meet with the approval of the trade. A race meeting so conducted would at least give the American manufacturer a chance to be heard and his interests considered, and would remove the effort from the domination of the gate receipts on the one hand and the blundering of well intentioned though unskillful amateurs on the other. There is no need more pressing in the industry to-day than the control of contests of a technical character by an authoritative body in which the builders have adequate representation. Aside from the question of control, which is vital, the character of the proposed contest and the reasons which have led up to the making of the suggestion by Mr. WALDON in a paper recently read before the executive committee are worthy of serious consideration.

Mr. WALDON says: "This event should occur in the fall of the year, with the first one say in September or October, 1906. The distance should be 300 miles, and without stop or controls, if possible. The motor size should be the equivalent of four cylinders 4 1-2 inches bore by 5 1-2 inches stroke, and the weight of the car, with twenty gallons of gasoline on board, 2,200 pounds."

The idea of a racing classification based on piston displacement is, of course, not a new one. It was originally suggested as a remedy for the tendency toward the construction of freak track racers, and a classification on this basis was advocated by E. T. BIRDSALL, the well-known automobile engineer of New York, in these pages in February, 1904. As Mr. WALDON points out, the development of racing machines has been along the lines of least resistance, both here and abroad; with the result that here the scarcity of good roads caused the early development of track racing, while abroad the splendid national highways of France gave an outlet for invention and skill in the construction of road racing cars.

We do not, however, so clearly follow the reasoning that a contest under piston displacement and weight classification would be "a competition in which science and engineering skill would win instead of brute power and bullheaded luck." There is no doubt that to construct a freak machine, with an enormous ratio of engine power to dead load, which will circle a smooth track for a few miles at high speed, or make a remarkable dash on a wave-ironed beach, does not call for any great amount of science or engineering skill. On the other hand, to build a car of high horsepower that will survive a grueling contest lasting several hours, in which tremendous speeds are maintained over ordinary roads, is to our thinking a task calling for the very highest engineering skill imaginable, and the application of all the requisite knowledge that science teaches.

The classification by weight alone has served its purpose in developing the modern type of touring automobile, for it is undeniable that the progress in practical touring car construction has closely followed the development of the road racer abroad. And those who have not directly profited by the experience thus gained have profited by example.

Present conditions governing the use of suitable materials of construction and the use of the roads for trying out such constructions impose a terrific handicap on the American designer when the building of a very high powered car is considered, and from these conditions his European rival is almost wholly free. The proposed classification comes in as a happy solution of the difficulty by imposing maxima which are not without the reach of the American designer, and which would be a step toward the position we must ultimately reach—successful competition in any contest without limitations other than those imposed by any and all other nations engaged in automobile construction.

***Equipment of Repair Shops.***

It would seem only natural to suppose that in an automobile repair shop—a shop where the most modern of mechanical productions are cared for—would be found many of the economic appliances, savers of time and labor, that are so commonly seen in modern machine shops and manufacturing establishments. Such, however, is not usually the case. In the great majority of repair shops comparatively ancient methods prevail, and numerous opportunities for saving time and labor, and consequently money, and at the same time producing better work, are missed. For instance, there are many repair shops and garages where the number of cars handled makes the installment of an air compressor for inflating tires an absolute necessity; so it is put in because its absence would mean a direct loss of business. Thus there is a supply of compressed air on tap, and an air compressor that is idle a large part of the time; yet when there is a job of drilling to be done on a car hours will be spent, perhaps, in removing the part to be drilled and taking it to a drill-press, or else in rigging up and using the slow, old-fashioned ratchet drill. A light, handy pneumatic drill, taking air from the tank already installed, would do the work in a fraction of the time and with a fraction of the trouble. An electric drill, with portable motor and flexible shaft, could be used for the same purpose. Grinding, reaming and tapping could be done by attaching emery wheels, reamers or taps to the spindle of the motor. Pneumatic hammers can be used for chipping, riveting, calking, and so on; but how many such tools are seen in automobile repair shops? Even portable cranes and chain hoists, to say nothing of such refinements as trolley hoists, are comparatively rare, because most of the parts of an automobile *can* be handled by strong men if sufficient time is allowed.

There are, of course, exceptional shops where advantage is taken of modern inventions, but the average repair man seems to feel that the only question to be considered is that of first cost. It is difficult, apparently, for him to realize that the hard cash he pays out for the time of men engaged in doing work in the old-fashioned way might better be spent in the purchase of improved appliances which would not only reimburse the repair man for their cost, but do better work; and, after having paid for themselves, would leave a greater margin of profit for their owner.

In a small shop the amount of work for such tools would not make their purchase a paying investment; but in a shop where much work is done the time saved would be a large item, and could be quite readily ascertained by keeping records of the time taken on work done by hand and making comparisons with the time that would be required with the use of labor-saving tools.

# BOSTON PARKWAY SPEED RAISED.

## Fifteen Miles an Hour Now Allowed on Principal Drives Instead of Ten—New Parks and Drives Opened to Autos Form Important Links in Popular Routes.

*Special Correspondence.*

BOSTON, Sept. 18.—One of the most important concessions that has yet been obtained by the automobilists of Massachusetts is contained in the new set of rules and regulations which has just been issued by the Metropolitan Park Commission. This commission has charge of all the parks in the neighborhood of Boston which are owned by the state. Its jurisdiction is supreme over miles of the finest boulevards that extend into the country from the city, and which encircle it on the land side. The commission also has under its control hundreds of acres of reservations, seashore and country, which contain some of the most beautiful drives to be found near Boston. The boulevards have long been favorite highways with automobilists, and as they often furnish the most direct means of communication with outside places, they are used more than any other of the main roads.

For a long time the Park Commission would not permit automobiles in the reservation at all, and until last Friday it restricted their speed on the broad parkways to ten miles an hour. The fact that the ten-mile limit was rigidly enforced caused automobilists a great deal of trouble, and some sections of the parkways have been known as the worst police traps about the city. This summer the question of making the automobile rules more lenient was brought before the Park Commission by the Massachusetts State Automobile Association, of which Francis Hurtubis, Jr., former secretary to Governor Bates, is counsel. The commission was in a receptive mood and Mr. Hurtubis' arguments prevailed.

The most important change brought about by the new rules is the increase of the speed limit to fifteen miles an hour, the highest rate permitted by the general state law, on Middlesex Fells, Revere Beach, Mystic Valley, Fresh Pond and Blue Hills parkways, where formerly the limit was ten miles, and in addition automobiles are allowed on the Charles River road and Neponset River parkway, where the limit is also placed at fifteen miles.

Besides granting this increase of speed on the parkways, the commission has opened several reservation roads and driveways, including the shore drive in Lynn, called Lynnway, and the Nahant Beach boulevard. On these drives and on the roads where automobiles were formerly permitted in the reservations, the speed limit remains at ten miles an hour. A most important concession, however, is the rule by which the Revere Beach driveway is opened to automobiles for the entire year. The reservation is the most popular shore resort near Boston throughout the summer, and the parkway forms a most important link with other park roads to make a continuous highway almost from the heart of Boston to Revere Beach and the North Shore summer resorts, which is used by hundreds of automobilists living along the North Shore and by those touring to New Hampshire and Maine. Until last fall, the Park Commission would not permit automobiles on the Revere Beach driveway on account of its constant use by pedestrians and horse-drawn vehicles. Last fall, however, the commission granted the automobilists the use of the driveway from October 1 to May 1. Under the new rule they may use the driveway at ten miles an hour from September 15 to June 15, and during the period from June 15 to September 15 may use it from midnight to 10 A. M. This and the opening of the new Lynnway and a short stretch of state road will give a continuous drive through the crowded sections to the northeast of Boston, which will be much appreciated by the many automobilists who heretofore have been obliged to drive through the main streets of Charlestown, Chelsea, Lynn, and other busy places.

# CANNOT STOP RACING.

## Cleveland City Solicitor Says Spectators Endanger Themselves at Tracks.

*Special Correspondence.*

CLEVELAND, Sept. 18.—The city solicitor of Cleveland has notified the councilman who sought to pass an ordinance prohibiting automobile racing, that in his opinion the council had no authority to pass an ordinance prohibiting such races where the events took place on private property. In discussing the subject, he said that in his opinion the council could not pass an ordinance of this character unless the public safety was endangered. The councilman thereupon urged that the public safety was endangered inasmuch as automobiles in rounding curves were likely to crash through the fence and injure spectators. The solicitor replied that people paid to go to the exhibitions and that if they deliberately placed themselves in positions of danger, it was their own fault.

"Suppose people should pay to be allowed to go to a place where there was a fire, would we have no authority to put a stop to it?" asked the councilman. He has not yet abandoned his idea of getting such an ordinance passed, and will seek other legal light than that offered by the city solicitor.

Earl Kiser, who has been at St. Clair Hospital, Cleveland, since his accident, at Glenville track, has returned to his home in Dayton. He left in a very cheerful frame of mind. He said that he had arranged to buy an artificial leg, and that he was going back into the automobile business, but he did not think he would ever race again.

## A KEEN ENTHUSIAST.

*Special Correspondence.*

ASBURY PARK, N. J., Sept. 18.—One of the most enthusiastic automobilists in this section this summer is Frank Savin, a New York broker, who is spending the season in his cottage at Elberon. Every fair morning he drives in his powerful Mercedes car overland from Elberon to Plainfield, a distance of about fifty miles, and takes the train at the latter place for New York.

Mr. Savin's car is a handsome importation of black, crimson and gold. He is accompanied by a chauffeur, and leaves his seashore home soon after 6 A. M. to make the run, going by way of New Brunswick, and reaching the railroad station at Plainfield in time to take the 8:30 express for the metropolis.

Sometimes, when he meets with delays or slight accidents on the way, he pulls up at the station with barely enough time to climb aboard before the train gets in motion, but as a usual thing he arrives early enough to give himself a chance to lay aside his linen driving cloak, gloves, cap and goggles, and board the train comfortably. The chauffeur oils the car, looks over the machinery and then starts on the return trip. Mr. Savin's arrival and all his motions, until he boards the train and the chauffeur starts homeward, are watched by an interested crowd.

Mr. Savin has gone over the road so many times this summer that he can time his arrival at the station almost to a minute. He returns to the shore at night by train.

## AUTOING IN THE DESERT.

*Special Correspondence.*

MINNEAPOLIS, Sept. 16.—Mr. and Mrs. A. G. Cushman, of Rhyolite, Nevada, who were recently visiting in this city, had a rather trying experience on their return home recently. Rhyolite is 140 miles from Tonopah, the nearest railroad point, and the distance is covered by an excellent automobile service. The company, which operates the line, uses several high power machines especially built for the service, as there are some unusual grades on the three divides.

There were four in the party, and when about fifty miles "from nowhere," something went wrong with the machine. It took the driver half a day to get it running, and during that time the party had only a quart of water to divide. As the temperature was about 125 degrees in the sun, and there was no cooling shade to hie to, the experience can be imagined.

While in Minneapolis the Cushmans said the automobile company was fairly coining money. It has expended about $3,000 on putting the road from Tonopah to Bullfrog, just beyond Rhyolite, into condition. As the road crosses desert land, most of it is smooth and hard. The automobiles are used entirely for passenger and mail service, freight going through with twenty-mule teams. It takes but a few hours for the autos to make the trip, while the mules come along about three days later.

The company charges $25 per passenger for one trip.

## COUNTY WIDE TIRE LAW?

The commissioners of Allegheny county, at a recent meeting, adopted a new set of rules relative to using the county roads which are of special interest to automobilists. The rules which go into effect December 1, and any violation of which will be punishable by a fine of $10 for each offense, are as follows:

"No person shall haul more than three loads over any improved roads unless the wheels of the vehicle used shall have tires as follows: For loads over 1,000 pounds and not exceeding 2,000 pounds, tires two inches wide; 2,000 pounds and not exceeding 5,000 pounds, tires three inches in width; 5,000 pounds and not exceeding 6,000 pounds, tires four inches in width; 6,000 pounds or over, tires not less than six inches in width. No chain or deadlock shall be used except steel shoes of a pattern to be approved by the county road engineers. No rubbish of any kind shall be placed on the roads nor any obstruction to drainage created."

**The automobiles** do raise a fearful dust on the boulevards. They should either run slower or carry dusters.—Quincy (Ill.) *Herald.*

**John Jacob Astor** has lately told the world that the farmer has a new friend in the automobile. The farmer whose horses have plowed all day and who, with his family, naturally needs recreation when the work is done, will, thinks Mr. Astor, invoke his automobile that as a stationary engine may have been cutting feed, sawing wood or what not, switch the motive power to the driving wheels, and, with a joyful "All aboard," be off to the nearest town, although it be miles away.—*Chicago Chronicle.*

## DEFECTIVE LAWS WORRY POLICE.

### Cleveland Council to Draft New Automobile Ordinance Because Loopholes in Old One Allowed Violators to Escape —Intent to Violate Speed Limit Must Be Proved.

*Special Correspondence.*

CLEVELAND, Sept. 18.—The police authorities of Cleveland are much troubled over the idiosyncrasies of the laws governing the use of automobiles. There are too many laws, and they not only conflict, but there are loopholes through which offenders easily escape. The city ordinance passed several years ago has been amended and patched up until it is contradictory and conflicting.

A year ago the state passed an automobile law which, of course, superseded the local ordinance so far as speed limits are concerned, but lately shrewd lawyers have discovered that the state law is indefinite and faulty, and the offender who employs a good lawyer has been getting off scot free with a regularity that disgusts the police prosecutor and the officers who make the arrests.

During several weeks past there have been a large number of arrests, but few prosecutions. A good many scorchers have been getting off because some one recently put up the contention that it was necessary to prove a willful purpose and intention of violating the speed clauses. The offenders claimed they did not know just how fast they were going, had no means of knowing, and had no intention of breaking the law. Judge Fiedler, of the police court, held that this point was well taken, and has discharged a number of alleged violators.

Another loophole in the state law is the clause which provides a speed of eight miles an hour in the "closely built-up business districts." This makes it necessary in many cases to prove that the offense was committed in a closely built-up district, and the court has been unwilling or unable to decide on this point in a number of cases. As a result, the police prosecutor ordered that no more papers should be issued for violations of the speed limit in the downtown sections, but that chauffeurs traveling faster than eight miles an hour should be arrested for careless driving.

In this connection an amusing incident occurred some days ago. A chauffeur, who had been arrested some time before on the charge of excessive driving, in the downtown district, went to the police court and requested that his fine be returned to him. He said he understood that the automobile law had been proven faulty and he thought he ought to have his money back. But the court declined to accommodate him.

So troublesome have been these occurrences that members of the city council were asked to draft a new automobile ordinance. Some of the members of the council met with members of the Chamber of Commerce and the Cleveland Automobile Club recently, to discuss the matter among other things, but nothing definite was accomplished. One of the points which will be embodied in the new ordinance, however, will be that automobiles must not be left standing on business streets for more than an hour or so at a time. This met with considerable objection among automobilists, because it is a common practice for owners to leave their machines standing in front of places of business during business hours. In fact, many cars stand for hours at a time on the main streets. The ordinance will also probably provide that all cars when left standing, must be on the right side of the street, with the right side to the curb.

Much interest attaches to the case of Mrs. A. H. Bailey, who was arrested a short time ago on a charge of manslaughter. On August 15, while driving across the viaduct, she struck Charles Broestle, inflicting injuries from which he finally died. At the coroner's inquest some days ago, Mrs. Bailey testified that the unfortunate man ran directly in front of her machine. He was trying to catch a passing street car, and did not look where he was going. She testified that she was going at about six to eight miles an hour, when she struck him. In answer to a question, she admitted that she might have reversed her machine, but said that it she had, she would have injured several men by backing into them.

In the police court trial, Dr. Crowley, who had attended the injured man, testified that the immediate cause of the man's death was pneumonia, the primary cause being the fracture of a rib by the accident. A policeman testified that the machine was going about ten miles an hour. The case has been continued, and it seems improbable that Mrs. Bailey will be convicted of any criminal charge.

## WHERE OLD CARS GO.

### Minnesota Farmers Buy Many Second-Hand Runabouts During State Fair.

*Special Correspondence.*

MINNEAPOLIS, Sept. 16.—"What becomes of all the second-hand automobiles?" is answered as was the same query regarding old bicycles—the farmers buy them. This has been particularly emphasized during the present week when so many people from the country districts have been here visiting the Minnesota State Fair. All week the agents handling the smaller machines were kept busy explaining the mechanism of the simpler vehicles. Many orders were taken for second-hand machines to be shipped to the rural districts.

The Minnesota farmer is in excellent financial condition this fall. He is the man of money, and it seems that he long ago decided to enjoy everything possible that the city man does. He is shrewd enough not to invest in an expensive machine. The nearer the mechanism is to a mowing machine or self-binding reaper, the better he is satisfied. Four-cylinder cars are too much for him, and he knows that if something went wrong out in the country, he could not get an expert to locate and correct the fault. So he goes in for the small car, and, being economical, is satisfied with a machine that has been used before.

**Pittsburg** automobilists are making excellent use of a new and perhaps the finest macadam drive that leads out of the city—the road up the Allegheny river toward Kittanning. Dozens of autoists make the run every day as far as the macadam is completed and declare it the most desirable route around Pittsburg. The scenery is the finest to be found in western Pennsylvania, as the road winds around within sight of the river all the way, and is surrounded by heavily wooded hills, among which the little villages peep out like startled children.

**The second** annual race meet of the New Jersey Automobile and Motor Club will be held on Saturday afternoon, September 23, at Waverley Park. There will be six events, the first to start promptly at 2 o'clock. Many entries have been filed.

## FAST AUTO RACING AT SYRACUSE.

### Middleweight and Motorcycle Records Broken by Wurgis and Curtiss—Bernin Runs Big Renault into Fence, but Is Not Seriously Hurt—Winchester Loses to Oldfield.

*Special Correspondence.*

BUFFALO, Sept. 18.—The grand circuit races held at the State Fair track to-day were replete with exciting incidents, a number of world's records being broken and a serious accident being narrowly averted.

The accident happened in the five-mile national championship race, in which Guy Vaughan, in the 40-horsepower Decauville; Dan Wurgis, in the Reo *Bird*, and Maurice Bernin, in W. G. Brokaw's 90-horsepower Renault, started. Bernin was leading in the third mile after a sensational dash to the front, when he ran into the inner fence at the lower turn of the track while going at about a mile in 50 seconds. A large section of the rail was torn down and Bernin was cut over the temple by a broken timber. Although severely shaken up, he was not seriously damaged, and drove his car slowly to the judges' stand, where he dismounted. The machine was slightly damaged.

The first record to go was the mile for middleweight cars. Wurgis went after the old record of 59 seconds made by Bernin at the Empire City track last year, and with the 30-horsepower Reo cut 1-5 of a second off of the time, placing the new record figures at 58 4-5.

G. A. Curtiss, of Hammondsport, N. Y., in a two-mile motorcycle exhibition, made the first mile in 1:03 1-5 and the full distance in 2:04 4-5, breaking the records of 1:04 for the mile and 2:10 for two miles, made by Albert Champion on the Empire City track three years ago.

Barney Oldfield made the fastest five miles of the season on a circular track in an exhibition with the *Green Dragon*, doing the five laps in 4:38 2-5. The best previous performance of the year was 4:39, by himself at Buffalo, but the free-for-all record is 4:29, held by Oldfield. Three of the miles to-day were made in 55 3-5 each, and the two others in 55 4-5.

Vaughan twice defeated Wurgis in five-mile events, winning a special match race in 5:02 1-5, and again winning from Wurgis in the five-mile open for middleweight cars, which the Decauville won in 5:00 flat, with the Reo *Bird* second.

In a special match race run in heats, Oldfield defeated Walter Winchester in a Franklin racer in two straight heats, winning by a fifth of a second each time. Winchester had the lead in both heats until near the finish, when Oldfield dashed in ahead. The second heat was faster than the first, and was run in 5:15.

## AVALON-HEREFORD BEACH COURSE.

*Special Correspondence.*

PHILADELPHIA, Sept. 18.—It is authoritatively stated that the Avalon-Hereford Inlet course, otherwise known as Seven-Mile Beach, will be the scene next summer of a series of automobile races, and that W. J. Morgan is back of the scheme. During the past fortnight the beach has been carefully surveyed, and has been found to have a minimum width at low tide of about 75 feet, although at many points the course at low water is fully as wide as the beaches at Cape May and Atlantic City, and more compact than either. This is believed to be due to the presence in the sand of infinitesi-

mal particles of small sea shells, which, composed mainly of lime, have a tendency to cement the sand, when dry on the surface, into an almost solid mass resembling asphalt.

Apart from an old wreck, which will be removed, there is not a single obstacle throughout the entire 7½ miles from Townsend's Inlet to Hereford Inlet. Although a pier is projected for Avalon, at its extreme northern end, it will be so situated as to be beyond the finish line of the races. The only drawback at present is the absence of a suitable road across the salt marshes from the mainland. This will be remedied during the approaching winter and spring, the contemplated improvements also including the erection of a handsome clubhouse and garage for the accommodation of automobilists at Avalon.

## LAKE GENEVA AUTOISTS HELPFUL.

*Special Correspondence.*

LAKE GENEVA, WIS., Sept. 16.—Twelve wealthy owners of automobiles who own country seats around the shores of this lake have consented to make a display of their cars at the county fair to be held at Elkhorn, commencing September 19. One of the leading exhibitors is Edward E. Ayer, a Chicago millionaire who has made two extensive tours of Europe. Mr. Ayer and others of the Chicago colony claim that in Walworth county, of which Elkhorn is the county seat, and in which Lake Geneva is located, car owners have met with unusually courteous and intelligent treatment on the public highways, and they are going to show their appreciation by helping out on the county fair.

The wealthy autoists have contributed funds for premiums to be awarded to drivers who make the best showing in racing, obstacle dodging, quick stopping and maneuvering in general.

The owners of these machines and others of the local summer colony recently participated in a midsummer fair arranged for the benefit of the Lake Geneva Fresh Air Association. The treasury of the association was replenished to the extent of $7,000 from the proceeds of the fair. On this occasion the automobilists made a tour of the surrounding country.

## CROSSING THE PLAINS.

### Megargel Held Up by Wire Fences on the Way to 'Frisco.

*Special Correspondence.*

CHEYENNE, WYO., Sept. 15.—This is the second time I have automobiled across the state of Nebraska and into Wyoming, and what a difference. Before, a big day's run would figure about fifty miles, and the mud was everywhere. Now, with the exception of an occasional mud hole, which as a rule can be readily discovered owing to the peculiar alkali deposit on the surface of the crust, the running is excellent and a hundred miles a day can easily be covered between 8 o'clock in the morning and 6 at night.

The *Reo Mountaineer* seems to improve with age and spins along at a thirty mile clip when real level stretches are encountered, but owing to the numerous chuck holes, one has to be pretty careful about fast running or he is apt to have a front axle go down, or at least break the truss rod. However, we have had nothing of this kind to delay us on our present trip.

The barb wire fences are another thing an automobilist has to be careful of in these parts. It seems the Union Pacific railroad built a good wire fence on both sides of the track, and the ranchers find it much easier to build their boundary fences right down to the railroad fence and build a gateway across the road than to put up a parallel fence on their own side of the road or trail.

On Wednesday evening, just prior to our lighting up, we were bowling along at a twenty-mile clip when suddenly a barb wire fence loomed up all the way across the trail. We hit it, and hit it hard, breaking every wire in the fence, and incidentally smashing our searchlight connections. Had it not been for the searchlight we would have been badly cut up by the barb wire.

Another source of danger is the prairie dog. While innocent enough himself, he has a habit of constructing his main entrance to his home right in the wheel path. A prairie dog is supposed to dig his hole until he comes to water. As water in these parts is frequently several hundred feet below the earth's surface, you can readily imagine the amount of dirt that is piled up around each prairie dog's hole. When coming down the trail at a good speed the sudden jar that comes from striking one of these mounds is enough to throw one entirely out of the machine.

Rattlesnakes are thicker than ever and abound in the vicinity of Lodgepole and Chappell, Nebraska, and Julesburg, Colorado. It was while running near Lodgepole we ran over a huddled mass of rattlesnakes sunning themselves alongside the road. The wheels of our car threw them in all directions, one actually landing on the canvas covering of the tonneau, from where he quickly slid to the ground, much to our relief. Several of the reptiles stuck their fangs in our tires, and in less than an hour the tire went flat. The question that arises is "did the rattlesnakes puncture the several layers of rubber and canvas that go toward making up a Diamond tire?" I think they did, but am open to argument.

The number and size of the rattlesnakes put a damper on our sleeping out of doors that night, and we put up at a fourth-class hotel rather than take chances in the tonneau. Prairie chickens are very plentiful and we meet hunters and their dogs wherever we go. The coyotes are pretty thick also, and their barking can be heard far into the night. We have not managed to get a shot at any thus far, although we now carry the Winchester carbine, loaded with six thirty-eights, strapped to the side.

Our sand tires, shipped ahead, awaited us here, as did also a new set of tires. Our original four tires are still in excellent condition, and we have reshipped the new set to Boise, Idaho. The sand tires, however, we will take with us, as I happen to know of a little piece of sand that cannot be crossed without them, and that isn't many miles west of Cheyenne.

There is one thing about touring over trails that makes it more difficult than running over a road, and that is the depth of the ruts where the soil is sandy. Sometimes we find ruts as much as three feet deep, and it takes the greatest amount of caution to avoid running into them, especially after dark. We have run hard and fast aground about twice a day on an average, and then it is a case of jack up each wheel individually and shovel dirt under it until we have practically rebuilt the roadway. Our spade has certainly proved a very helpful companion.

PERCY F. MEGARGEL.

*Photo by V. R. Lane, West Liberty, Iowa.*

**MEGARGEL AND FASSETT CAMPING OUT IN CAR ESPECIALLY ARRANGED FOR SLEEPING.**

## POLICE CHIEF WANTS AUTOS.

*Special Correspondence.*

OMAHA, Sept. 16.—Chief of Police Donahue has come out in favor of purchasing automobiles for police patrol service, and has so recommended to the Board of Fire and Police Commissioners, which has the matter under consideration. The chief has been making something of a study of the subject and says he thinks autos superior to the clumsy wagons now in use for many reasons. At present he desires two machines bought for use in Omaha; one capable of holding about twenty-five passengers and of slow speed, and the other a light car for five or six passengers, able to travel faster than thirty miles an hour.

"I have corresponded with police chiefs in a number of cities where automobile patrol cars are used, and find the results have been good," says Chief Donahue. "The rapidity with which a car can respond to a hurry-up call, is one of the factors that incline me towards the machines. Another is the fact that a burglar at work can hear the patrol wagon coming, whereas an auto could be down in front of the house he was robbing before he had a suspicion."

It is expected that the board will be willing to spend $3,500 or $4,000 on autos.

## PLACING ROAD SIGNS.

### Buffalo Club Posting Cross Roads and Danger Spots with Permanent Signs.

*Special Correspondence.*

BUFFALO, Sept. 18.—An important work now being carried on by the Automobile Club of Buffalo is the erection of signboards along country roads within a radius of fifty miles of the city for the purpose of indicating the direction and distance to places and to warn drivers of danger. The work of erecting these signs was started some time ago by Dai H. Lewis, secretary of the club, who is the chairman of a committee of ten members having the matter in charge.

The signs are two feet long and a foot wide. They are made of white enamel on sheet iron, with letters of blue enamel. They are being placed at all crossroads, and are of great assistance to touring automobilists and drivers of all vehicles. They also mark approaches to steep grades, sharp curves and other dangerous places in the roads. All the signs which were ordered for the road from Buffalo to Batavia, via Main street and Genesee street, and from Buffalo to Fredonia via the Lake Shore road, have been received and, providing the weather is favorable, all will have been placed in position within a short time. The signs are fastened to telegraph poles or any other fixtures where they will be conspicuous to drivers.

When the plan was originated all members of the club were asked to give suggestions as to places where signs should be erected, and valuable assistance has been given the committee by the members, who are glad to do all they can in the matter. In order to have the signs protected, the committee has adopted the plan of asking the automobilist living nearest to one of these signs to keep his eye on it and see that it is not molested or destroyed.

Secretary Lewis has announced that he is preparing for publication an automobile blue book of Buffalo and western New York. It is his intention to publish road maps and routes of little tours, giving the distances from town to town, the hotels, garages, and information regarding supplies, etc. The book will contain also the state law, the Canadian laws, customs requirements, and, in fact, all kinds of information particularly valuable to tourists. He expects to publish the book by next March.

## WASHINGTON CLUB TO INCORPORATE.

*Special Correspondence.*

WASHINGTON, D. C., Sept. 18.—Before the end of the current month it is expected the Washington Automobile Club will be fully organized and ready to enter upon its career of usefulness. A second meeting was held this week and several important matters pertaining to organization were taken up and disposed of. It has been decided to incorporate the club at once. Several hundred blank applications for membership have been circulated among desirable automobilists, and when these are sent in they will be passed upon by a committee appointed for that purpose. Special efforts will be made to keep the membership as clean as possible, as the new club will be primarily a social organization.

Quarters have been secured at a well-known roadhouse several miles north of the city, where the club members will have every comfort. A small garage will be erected for their benefit and they will be almost as exclusive as if in their own clubhouse. A country clubhouse will undoubtedly be built by the club within a year or two.

## GOOD ROADS TOUR.

### Elkhart A.C. Organizing Three-Day Trip in Indiana and Michigan.

*Special Correspondence.*

ELKHART, IND., Sept. 18.—An automobile tour through northern Indiana and southern Michigan to further the good roads cause is to be made September 26, 27 and 28 by all

SAMPLES OF SIGNS THE BUFFULO CLUB IS ERECTING.

the automobilists of this city under the auspices of the Elkhart Automobile Club.

The start will be made at 9 A. M. from the Kenwood Golf Club, and the itinerary has been arranged as follows: To Edwardsburg, Niles, New Buffalo, Michigan City, Laporte, New Carlisle, South Bend, Mishawaka Wakarusa, Nappanee, Warsaw, Leesburg, Syracuse, Ligonier, Goshen and back to Elkhart. Half-hour stops will be made at all the towns. The autoists will distribute literature and make speeches setting forth the purposes of the Elkhart Automobile Club.

Owners in the various towns visited will be invited to join in the tour, and it is expected that many of these will return with the party to Elkhart, where a big meeting is to be held. The autoists will take dinner on the second day at South Bend, and plans are being made for a banquet at Michigan City. Practically all Elkhart automobile owners have signified their willingness to make the three days' trip.

## NEWS NOTES OF THE CLUBS.

LIGONIER, IND.—Automobilists of this town are about to organize for the purpose of mutual protection and the betterment of the public roads.

ST. JOSEPH, MO.—Automobile owners of St. Joseph have formed a temporary association, with Charles A. Fleming and Dr. Parks as officers. The association is to be permanently organized in the near future, and will attempt to put through favorable automobile legislation.

PEORIA, ILL.—Members of the Peoria A. C. are considering the advisability of establishing a bureau of information concerning automobile matters. One of the duties of the bureau will be to keep the public informed through the press and by other means of the conditions of the roads leading to the city. In these days of frequent tours by autoists this information will prove advantageous and welcome.

CHICAGO.—Chauffeurs here have organized the Automobile Chauffeurs' Benevolent and Protective Association of Illinois. The promoters are John E. O'Brien, Joseph La Vier and F. G. Higgins, and it is the plan of the association to include workers in the trade throughout the state.

AUSTIN, ILL.—Thirty-five autoists of Austin have organized the Austin Automobile Club, and at a recent meeting elected the following officers: Joseph Francis, president; Joseph Plew, vice-president; John J. Miller, secretary, and S. C. Crafts, treasurer. The club will have an official surgeon, Dr. C. A. McBurney being elected to the office.

OAK PARK, ILL.—The Automobile Club of Oak Park was recently organized, and the following officers elected: W. G. Lloyd, president; Allen S. Ray, vice-president; A. S. Terrill, secretary; T. J. Hyman, treasurer; Dr. T. E. Roberts, surgeon.

DECATUR, ILL.—George W. Erhardt, third vice-president of the Illinois Automobile Association, has extended an invitation to the Chicago A. C. to make a run to St. Louis this fall, where the Chicago members will be entertained by the various motoring organizations of southern Illinois.

LOS ANGELES, CAL.—Members of the Los Angeles Motorcycle Club have passed resolutions to the effect that violations of the laws governing the speed of motor vehicles will be punished by expulsion from the club, and the members will co-operate with the peace officers to apprehend any persons guilty of such misdemeanor. The club has a membership of thirty, and is growing rapidly. The officers are: C. W. Risden, president; George Hull, vice-president; W. M. Nichols, secretary; P. Stanton, treasurer.

NEWARK, N. J.—Delegates from the various automobile clubs of New Jersey will convene in Newark on September 26, with the intention of forming a state organization and affiliating with the American Automobile Association. It is confidently expected that Frederick R. Pratt, of Newark, former president of the New Jersey Automobile and Motor Club, will be elected president of the New Jersey state organization.

CHICAGO.—A meeting of many of the prominent members of the Chicago Automobile Club will be called in a few days to frame a request to the trustees of the various villages along the north shore to make the speed limit fifteen miles an hour in each. It is thought that if this action is taken and accepted by the villages the present difficulties will be eliminated. It is the opinion of most of the autoists that the timekeepers and policemen along the roads have been too enthusiastic in the matter of arrests.

# INDUSTRIAL

## DOMINION EXHIBITION.

### Automobiles a Leading Feature of Canadian Exhibition in Toronto.

*Special Correspondence.*

TORONTO, CAN., Sept. 18.—Automobiles attracted much attention at Canada's great national exhibition just concluded in Toronto. Upwards of a million people from all parts of the Dominion attended this exhibition. The crowds were the biggest on record. They swarmed over the grounds, through the buildings and blocked the driveways. More numerous than ever before, the automobiles darted hither and thither, adding the tooting of their horns to the general babble of sounds.

The automobile exhibits were a good drawing card. To the farmers they were a source of great curiosity, mainly because they seemed about as complicated as threshing machines. The typical rural visitor plied innumerable questions, presumably with the laudable desire of acquiring knowledge for its own sake. Spurred on by the hope of business, the attendant would enter into a laborious explanation of the mechanism of the automobile, only to have his patience rewarded, as his inquisitor passed on, by some such question as, "Say, mister, is that there machine gasoline or electric?"

But others than the farmers were looking at the automobiles. The Toronto exhibition is regarded by those in the trade as the best index of the prospects for next season. It is the occasion when people who are thinking of buying an auto begin to make inquiries. This year the inquiries were particularly numerous. A local manufacturer told THE AUTOMOBILE representative that the indications were all that could be desired, and, if fulfilled, 1906 would be a banner year for the sale of automobiles in Canada.

One feature of the exhibition was a Packard truck, sold to the T. Eaton Company, of Toronto, the largest department store concern in Canada. J. C. Eaton, manager of the company, is an enthusiastic Packard owner. In addition to the truck the Canada Cycle and Motor Company also exhibited a Russell, a car of its own manufacture, which has proved a great success. Twenty-five of these machines were built this year. For next season, the company will make them much more extensively. Among American cars it showed the Stevens-Duryea, Autocar, Waverley and Pope-Toledo.

The Olds 'bus and Olds delivery wagon, both made in Canada, at St. Catherine. Ontario, were shown by the Automobile and Supply Company, of Toronto, which also displayed the Royal Tourist and Rambler.

Hyslop Brothers, of Toronto, exhibited the Yale, Cadillac and Darracq.

The Ford Motor Company of Canada had a good exhibit. This company has sold about 150 cars in Canada this year, and also made export shipments to different British colonies.

## OFFERS AUTO FIRE WAGON.

*Special Correspondence.*

BUFFALO, Sept. 18.—At a meeting of the board of fire commissioners held several days ago, Percy P. Pierce, representing the George N. Pierce Company, made a proposition to place an automobile chemical engine at the service of the city for a two years' trial, free of charge.

Mr. Pierce said his company would install the engine in any fire house in the city, the company agreeing to demonstrate it fully so that one of the firemen could operate it. The company would further agree to pay for the maintenance of the engine and the automobile carriage for the two years. At the end of that time title to the automobile chemical engine would revert to the Pierce company. All that would be expected of the city at the end of the time would be to pass its opinion of the desirability of such a fire-fighting apparatus. While it will be under no obligation, the city might, if it desired, buy one or more of the machines.

The fire commissioners look with favor upon the proposition, particularly as it will cost the city nothing, but formal action on the matter was withheld until later.

## LOWE LEAVES WHITE.

### Retirement of Boston Manager Completes Trio of Important Changes.

*Special Correspondence.*

BOSTON, Sept. 18.—Another change in the series of changes in local trade circles that has kept branch managers and agents on the *qui vive* all summer occurred last week, when it was the announcement that George H. Lowe, the veteran manager of the Boston automobile branch of the White Sewing Machine Company, would retire on October 1. Mr. Lowe has been in the automobile business in Boston as long as any other manager or agent, and has been connected with the White company for sixteen years. He was formerly in charge of the bicycle business, and when the company began building steam cars, took charge of that business. The popularity of the White steamer in New England testifies to his ability. He will be succeeded by J. S. Hathaway, who has been his assistant.

The retirement of Mr. Lowe removes about the last of the men who have been connected with the business in this city since its inception, and puts an entirely different aspect upon the local situation. The first of the branch managers to make a change was Harry Fosdick, who was succeeded by F. A. Hinchcliffe in the management of the Boston branch of the Winton company last June. Mr. Fosdick is now in business for himself as the Harry Fosdick Company, at the Motordrome that is about to be opened on Stanhope street. With him is associated J. A. Dowling, formerly of Dowling & Maguire, agents for the Pierce cars. Their line has not yet been announced, but in addition to carrying a line of cars they will do a garage business.

Early this month came the announcement that A. E. Morrison, the Peerless branch manager, was going into business for himself. Mr. Morrison's successor is John L. Snow, formerly his head salesman. Mr. Snow has with him as salesman R. R. Ross, who until this summer has had charge of the Packard end of the business of Alvan T. Fuller, agent for the Packard and Cadillac cars. Mr. Ross was succeeded with Mr. Fuller by Fred C. Graves, formerly with the Haynes. Mr. Morrison has so far not divulged his plans, but says that he has them nearly ready to make public.

The retirement of Mr. Lowe completes the trio. It is said that he has under consideration an attractive proposition. None of the three men will be lost to the local trade, but at the next show they will not be seen exploiting the merits of the cars with which they have so long been identified.

## SUES CITY FOR REPAIR BILL.

*Special Correspondence.*

PHILADELPHIA, Sept. 18.—Some months ago, according to a statement made by President Chadwick, of the Fairmount Engineering Works, of this city, builders of the Chadwick automobiles and motors, the city of New York sent one of its municipal cars—the machine used by Chief John Woodbury, of the Street Cleaning Department—to this concern for repairs. The company claims that it has been unable to collect the bill, and as a result an attachment has been issued against New York City to recover the amount charged for repairs. This action is declared to be the first instance of a city being attached in legal proceedings.

## RECENT INCORPORATIONS.

Illinois Automobile and Parts Company, Peoria, Ill.; capital, $10,000. Incorporators: J. A. Holtsman, Robert P. Jack and Herman C. Kleene.

Auto Improvement Company, New York; capital, $200,000. Directors: Conrad Hobart, F. J. Alvin, New York; C. J. Coleman, Rockaway.

McLean Automobile Company, Newark; capital stock, $50,000. Incorporators: Charles L. Beck, Charles A. Greene and Joseph Garrardt.

Gas Engine Whistle Company, New York; capital, $10, 000. Directors: L. S. Datres, Scranton, Pa.; R. C. Adams, H. F. Adams, New York

Association Patents Co., New York; capital, $10,000. Directors: Charles Clifton and E. R. Thomas, Buffalo, and E. H. Cutler, Springfield, Mass.

The American Motor Company Pittsburg; to deal in automobiles. Incorporators: Alvin P. Shumaker, Charles R. Porter and Henry V. Porter.

The Mercedes Import Company, New York, (automobiles): capital, $100,000. Directors: E. C. De Witt, M. Wineburgh, Arthur Braun, New York.

Springfield Automobile Transit Co. of Springfield, Springfield. Ill.; capital, $6,000. Incorporators: James F. Williams, Will E. Dowling and William F. Ryan.

Sumter Automobile Co., Sumter, S. C.; capital, $3,000. Officers: H. J. Harby, president and treasurer; Perry Moses, Jr., vice-president, and I. C. Strauss, secretary.

Norwood Automobile Co., Hamilton county, Ohio; capital, $25,000. Incorporators: J. H. Schneider, W. S. Tredway, R. J. Sander, E. P. Moulinier and William A. Alter.

Lee & Perkins Manufacturing Company, Buchanan, Mich.; to manufacture everything in the way of vehicles and automobiles; capital, $200,000. Shareholders, Fred E. Lee, J. S. Clay, J. O. Becraft, Henry H. Porter and W. C. Porter

Milwaukee Automobile Club, Milwaukee; without capital. Incorporators: Ralph Elmergreen, J. Oscar Greenwald, Henry H. Rice, Lewis Sherman, Faustin Prinz, C. Scholtka, Louis Fuldner, James W. Brown, W. H. Pipkorn and R. J. Healy.

Vapor Gas Engine Mfg. Co., Perth Amboy, N. J.; capital, $125.000; to manufacture vapor engine and electric machinery. Incorporators: William K. Bassford, Jr.; William F. Van Pelt, Perth Amboy, N. J.; Joseph P. Hall, Roseville, N. J.

Capital City Automobile Company, Columbus, O. Incorporators: W. F. Wescott, R. C. Wescott, W. W. Robb and E. S. Hobart. The company will handle all kinds of new and second-hand autos, and will do a general garage and repair business.

# News and Trade Miscellany.

A new concern called the Syracuse Aluminum & Bronze Co., has been organized in Syracuse, N. Y., for the purpose of manufacturing high-grade castings of aluminum, brass and bronze. The factory formerly occupied by the manufacturers of the Stearns steam cars has been secured, and the necessary machinery and apparatus are being installed. The officers of the new concern are well known to automobile manufacturers. Willard C. Lipe is president; Alexander T. Brown, vice-president; and H. Winfield Chapin, secretary. All three are interested in the Brown-Lipe Co., of Syracuse, a concern with a reputation for turning out high-grade goods. Charles L. Ackerson is treasurer and manager, and will have the direct oversight of the work in the factory. These officers, together with W. H. Diefendorf, constitute the board of directors. Mr. Ackerson is an expert in this line, having had charge of the manufacture of aluminum castings for automobiles at the National Car Wheel Works, Rochester, for several years. The officers of the new concern state that a special point will be made of rush work and prompt deliveries, features that will be appreciated by manufacturers.

An authoritative statement received from the Olds Motor Works announces that the company has definitely decided to make no change for the coming season in the price of $650.00 for the curved dash runabout.

The St. Louis Motor Car Company (formerly the St. Louis Motor Carriage Company), has opened a branch at 1229-1231 Michigan Avenue, Chicago, which will be managed by T. B. Van Alstyne, general sales manager of the company, assisted by J. T. Rumble, formerly of the home office.

The Curtiss motorcycle, with double-cylinder, 5-horsepower motor, that won the 25-mile handicap at Waltham, Mass., taking both time and place prizes, was fitted with the Autocoil system of ignition, manufactured by the Autocoil Co., of Jersey City, N. J., which worked with perfect regularity. The average time for the twenty-five miles figured out at 1:23 to the mile, though on the long, straight stretches it is said that the pace was faster than a mile a minute.

The Pope Manufacturing Company is pardonably proud of two letters recently received from the Russian and Japanese Peace Plenipotentiaries, expressing appreciation of the excellent service rendered by the Pope-Toledo cars, which were used by them during their stay at Portsmouth, N. H.

Thomas B. Jeffery & Co. have opened the new garage just completed on Sheridan Drive, the shore drive north of Chicago. It is three stories in height, each floor measuring 60 by 121 feet, built of brick and stone, thus making it practically fireproof. It will hold upwards of 200 machines. The building has its own electric plant, which will furnish power to charge storage batteries. A large elevator makes it possible to transfer cars to the several floors. A commodious repair room is on one of the floors.

The Franklin "Gentleman's Roadster," Type E, with the regular 12-horsepower Franklin air-cooled motor set transversely in front, has a wheelbase six inches longer than the older Franklin runabouts, and is hung on full elliptic springs all around. The engine has mechanically operated valves, like all Franklin engines, and also has auxiliary exhaust ports, uncovered by the pistons. The manufacturers state that by taking out two small bolts a valve can be changed or the valve gears adjusted in two minutes. The gear-changing lever has been placed within the body of the car, instead of outside as formerly, making it more convenient for the driver to reach, especially if there is a top on the car.

An agency for the automobiles built by the well-known French firm of Renault Freres has been opened at 320 Fifth avenue, New York, by C. A. Tileston and Maurice Bernin, the latter well known to American automobilists on account of his excellent work on the track. Bernin will not retire from racing, but will drive a 90-horsepower Renault car exactly like the machine Sisz will drive in the Vanderbilt Cup race. The present quarters on Fifth avenue are of a temporary nature, as it is intended to secure a place in the automobile district later on.

Sidney Breese, son of James L. Breese, of New York, the well-known automobilist, and C. L. Lawrence, of Bay Shore, L. I., have built a racing automobile having a 12-horsepower Aster motor. The car has armored wood frames and embodies several features which, it is said, will be patented. The machine was built at the summer home of Mr. Breese, at Southampton, L. I., where Mr. Breese has a well-equipped private machine shop for automobile work. Five machinists were employed to assist in the work.

T. S. Casner, of Auburn, Ind., who is traveling in the interests of the automobiles built by the Model Gas Engine Works, of Auburn, Ind., states that he transports himself from place to place in a demonstrating Model car, and that he recently sold a number of Model cars in a town of only 850 inhabitants.

The American Motor Car Manufacturers' Association is to have a large block of space at the show to be given by the Automobile Club of America in the new Sixty-ninth Regiment armory in January next.

The Springfield Metal Body Company, of Springfield, Mass., has acquired by purchase about 50,000 square feet of land in Birnie avenue, opposite Medford street, Brightwood, and has commenced the erection of a $30,000 three-story brick factory, which it is expected will be ready for occupancy by the end of November.

The Wayne Automobile Company, of Detroit, has recently opened the following agencies: Portsmouth, O., R. S. Rich; Cairo, Ill., L. E. Denison; Kansas City, Mo., the Russ Auto & Machine Works; Wagner, S. D., Dr. R. H. Townsley; Laramie, Wy., Dr. H. E. McCollum.

John L. Poole, the foreign representative of the Olds Motor Works, who has been spending some time at the factory in Detroit, leaves this month to return to Europe. Mr. Poole states that he has great expectations for the future of the automoblie in Russia now that peace negotiations have been closed, having found that country a profitable field in the past.

The Atwood Manufacturing Company, of Amesbury, Mass., has taken a long-time lease on the five-story Folger building facing the station of the Boston & Maine Railroad in Amesbury. The new location gives the company 40,000 square feet of floor space, which will be entirely given over to the manufacture of lamps.

Having outgrown its present quarters in Utica, N. Y., the Weston-Mott Company is planning to secure a larger and more suitable plant. It is understood that, being desirous of locating nearer the center of the automobile industry, it has closed a deal with certain factory interests of Flint, Mich., where buildings will be erected for it. The company employs 200 men at the Utica factory in the manufacture of automobile axles, differential gears, wire wheels and wheel rims and also bicycle parts.

The New York agency for the Dolson car has been secured by J. A. Lawrence, who will establish a salesroom at 308-310 West Fifty-ninth street.

A meeting of the board of directors of the New York Motor Club was held on Friday, September 15, when W. J. P. Moore was elected first vice-president, A. L. McMurtry second vice-president, and M. L. Downs a director to fill the vacancy left by Mr. McMurtry. It was decided that an economy test of automobiles should be held during the week commencing October 23. The run is to last for six days, as follows: First day, New York to Philadelphia; second day, return to New York; third day, New York to Albany; fourth day, return to New York; fifth day, New York to Southampton, L. I.; sixth day, return to New York.

At the annual meeting of the Auto Body Company, of Lansing, Mich., plans were made for the erection of a new building which will double the capacity of the plant. A new powerhouse is also planned. The additions will be made in the rear of the company's present buildings on Franklin avenue east, and work will be commenced almost immediately. The officers of the company were re-elected as follows: President, Lawrence Price; vice-president, H. E. Thomas; treasurer, E. S. Porter; secretary and manager, H. E. Bradner.

The St. Louis Automobile Livery Company has secured the St. Louis agency for the Jackson automobile. The company is located at 3685 Olive Street.

The Chanslor & Lyon Motor Supply Co., of Los Angeles, has established a branch in San Francisco, at 503-505 Golden Gate avenue, and announces that it will be ready October 1 to take care of all the demands of automobilists. The firm states that its stock of accessories will be as complete as can be found in any of the establishments in the large eastern cities.

Manager Ficking, of the Auto Top and Cover Company, of New York City, has closed a contract for the entire output of the Supplementary Spiral Spring Company, of St. Louis. Recently the Auto Top and Cover Company allotted to a French dealer the foreign agency for Gabriel horns.

The Matheson Motor Car Company, of Holyoke, Mass., has decided to remove its plant to Wilkes-Barre, Pa., it is reported, the transfer to occur after January 1 next.

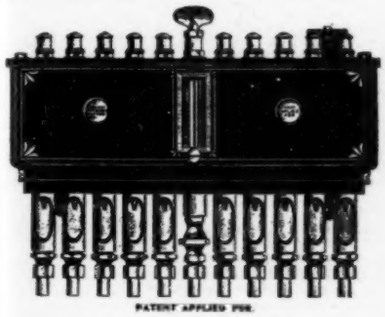
Tubb & Thomas, agents for the Reo and Oldsmobile at Pomona, Cal., are now building a new store on First street, near Geary, which when completed will be known as the Pomona Garage. The building will be fitted with modern apparatus for repair work, and will be kept open day and night. The firm will also conduct an auto livery in connection with its other business.

The fifth annual Detroit automobile show will be held in the Light Guard armory, Detroit, February 12 to 17 inclusive, immediately following the Chicago show. It is stated by the management that three-quarters of the floor space has already been taken.

In the British tourist contest, held in the Isle of Man on September 14, the winning car, driven by Arrol Johnson, was equipped with Continental tires.

# INFORMATION FOR BUYERS.

PEDERSEN LUBRICATORS.—There are many lubricators depending upon gravity for their operation, and there are plenty in which a pressure feed is employed; but a lubricator that can be made to feed either by pressure or by gravity at will is a novelty. Such a device is the improved Pedersen lubricator, manufactured by J. T. Pedersen, 642 First avenue, New York. This lubricator is intended to be connected with the exhaust pipe of the motor so that a small volume of gas will enter and exert a pressure on the surface of the oil, forcing



PEDERSEN LUBRICATOR.

it through valves in the reservoir and down through sight glasses under the body of the oiler. If it is desired to use gravity feed a thumbscrew on the top of the tank is given half a turn, and the gas pressure is cut off. The Pedersen lubricator can also be used in connection with the pressure of the circulating water. Another form of the Pedersen oiler is made in which pressure feed only is used. In this case the pressure forces the oil through siphon pipes in the reservoir, and as in the other style, down through the sight glasses at the bottom. The Pedersen lubricators are made with from two to ten oil leads, and with tank capacities of from one quart to one gallon. Each is fitted with a glass oil gauge in the front of the tank, so that the amount of oil on hand can be ascertained at a glance.

PNEUMATIC TOOLS.—The fact that in most large garages there is always a supply of air under pressure, used for inflating tires, should make it easy to install pneumatic tools for use in making repairs. Pneumatic drills, hammers, and so on, are great time savers, and for this reason the garage and repair men should be interested in the large catalogue of pneumatic tools issued by the Cleveland Pneumatic Tool Co., corner of Hawthorne avenue and Battery Road, S. E., Cleveland, Ohio. These tools are made for all classes of work within their range, from the lightest to the heaviest. Their construction and operation are clearly described in the catalogue and elucidated by means of sectional engravings. An interesting feature of one of the drills is that it is provided with a sliding gear "transmission," giving two speeds.

UNIVERSAL ACCESSORIES.—Two automobile specialties are described and illustrated on a circular recently issued by the Universal Auto Instrument Co., 228 North Fourth street, Philadelphia. One is a timer and distributor, made for use with a motor of any number of cylinders up to ten, using only a single coil. The timer has hardened steel roller contacts and heavy insulation. It may be placed in any position, and will work well running in either direction. The second specialty is a silencer, called a "cornet-coil" muffler. This consists of an expansion chamber of cylindrical form, from the side of which issue four pipes, each formed into a coil of three convolutions. These pipes are pierced with small holes close together throughout their length; the ends are open and bell-shaped. The exhaust gases expand first in the cylindrical chamber, and then escape easily through the numerous perforations and the open ends of the pipes. The end of the cylindrical expansion chamber is provided with radial openings closed by a butterfly valve which may be opened by a pedal or lever, this arrangement constituting a muffler cut-out. The valve is kept against its seat by a spring in such a way that a muffler explosion will force it back and permit the free escape of the gases, avoiding wrecking the muffler.

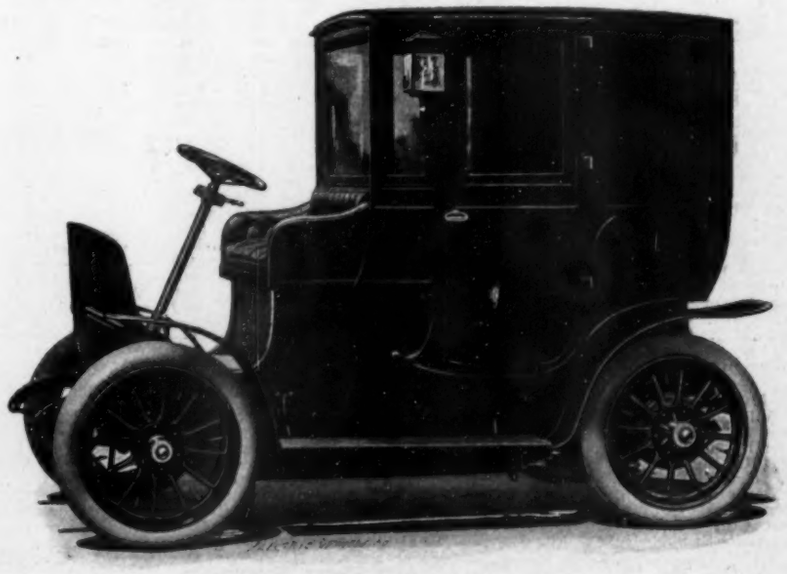
TOY AUTOMOBILES.—Something in the automobile line for the younger generation has been provided by Charles E. Miller, of 101 Reade strete, New York, who has recently issued a special catalogue, part of which is devoted to descriptions and illustrations of toy automobiles and automobile fire engines run by clockwork motors. The little machines, which range from seven inches to a foot in length, are of the conventional types, and have big, real-looking rubber tires, working steering gears, lamps, horns, and so on. The remainder of the catalogue is devoted to a line of automobile jewelry.

RATCHET BRAKE LEVERS.—There are plenty of occasions when the automobilist needs some device that will hold his brake without the pressure of his foot on the pedal. To supply this need the Reading Automobile Co., 28 South Fifth street, Reading, Pa., has brought out a line of ratchet pedals for automobiles. These neat little devices are made in special styles for most of the standard cars in the market. A booklet issued by the manufacturers illustrates and describes a number of them.

IMPROVED FUEL.—Gasoline, like everything else used in connection with automobiles, has its drawbacks, and not a few attempts have been made to devise a better fuel. The Energine Co., of Cleveland, O., offers a fuel called Energine which is said to be more economical than gasoline, much more powerful in its action, and cleaner—that is, it will not readily cause deposits of soot to form on the spark plugs and cylinder walls. A pamphlet issued by the Energine Co. gives a number of letters indorsing the fuel, and also makes some interesting statements as to what it will do. The same concern manufactures a lubricating oil, called Autovalve oil, which is placed on the market to meet the demand for a high-grade oil at a moderate price.

AUTOMOBILE TOPS.—A top on an automobile is one of those things that seems to pay for themselves in a single storm; for there is very little fun in automobiling in the rain without protection. Automobile tops in a number of types are manufactured by the King Mfg. Co., of Springfield, O., and can be had for any of the standard cars on the market. A recent circular issued by the King Co. illustrates a number of cars with King tops applied, and also shows the construction of the new King bow socket, which is reenforced with a steel slat backed up by wood filling. This construction is said to be almost unbreakable.

NEW COLUMBIA BROUGHAM.—The latest electric carriage brought out by the Electric Vehicle Co., of Hartford, Conn., is a brougham, made with either straight or extension front. This vehicle is described in Bulletin No. 17, issued September 1. There is seating accommodation inside for four persons, but when only two are using the carriage the front seat folds up out of the way. Electric light, electric signal to the driver, electric foot warmers for winter and electric fans for summer are all provided for; there is also an electric cigar lighter, a card case, mirror in a convenient pocket, memorandum pad and toilet case. The driver is not "perched" in the air, but occupies a low seat in front and steers with a wheel. There are five forward speeds and two backward; drive is through helical gears which are said to run with an almost entire absence of noise. Two foot-operated brakes and a foot cut-out switch are provided, giving the driver thorough control over the machine. The Exide battery of forty-four cells is underslung and is stated to have a capacity of forty miles on one charge. The body is finished in black with dark-green panels and black moldings with light-green stripes; running gear is dark green, with light-green striping. The inside upholstering is done in dark-green broadcloth, and the driver's seat in dark-green leather. The mountings are nickel plated.



COLUMBIA ELECTRIC BROUGHAM, MARK LXVIII.

## NEW TRADE PUBLICATIONS.

Autocoil Co., Jersey City, N. J.—Leaflets illustrating a number of autocoils of special patterns, in wood cases.

Wagner Electric Mfg. Co., St. Louis, Mo.—Catalogue of Wagner transformers, illustrating and describing a new transformer that can be used interchangeably for both lighting and motor service. The catalogue, which will doubtless be appreciated by electricians, describes fully the excellences of the new apparatus.

F. H. Wheeler, Indianapolis, Ind.—New booklet descriptive of the Schebler carbureter, illustrating and explaining its operation and describing its adaptation to the Cadillac motor. A new check valve is also illustrated and described; when used in connection with this valve, the Schebler carbureter is said to be eminently suitable for use with two-cycle gasoline motors.

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